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**SECRETARY GENERAL:**

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## INTRODUCTION

Le Bulletin d'Information n° 13 est distribué maintenant afin de donner à nos lecteurs suffisamment tôt tous renseignements sur la Conférence et le Congrès qui se tiendront à Montréal du 2 au 12 août prochain. Le n° 14, fournissant les toutes dernières informations, vous parviendra au moment de partir pour le Canada.

Ce Bulletin couvre la période de décembre 1960 à avril 1961. Il mentionne également quelques résultats de la 46<sup>e</sup> réunion du Comité exécutif – réunion préparatoire à la Conférence de Montréal – et dont la date fut choisie en fonction de cette manifestation.

Les événements suivants eurent lieu au cours de cet intervalle:

- 46<sup>e</sup> réunion du Comité exécutif, Bâle, du 4 au 6 avril 1961
- Réunion du Comité sur la Recherche spatiale, Florence, du 7 au 18 avril
- 1<sup>er</sup> Congrès international sur la Corrosion des Métaux, Londres, du 10 au 15 avril
- Symposium sur les Enzymes en Chimie clinique, Gand, du 14 au 15 avril
- Réunion de la Commission de Nomenclature biologique, Amsterdam, du 17 au 18 avril
- 12<sup>e</sup> réunion du CITCE, Bruxelles, du 24 au 29 avril
- Congrès de Chimie analytique, Budapest, du 24 au 29 avril
- Symposium sur la Détection et l'Emploi du Tritium dans les Sciences physique et biologique, organisé par l'Agence internationale de l'Energie atomique à Vienne, du 3 au 10 mai 1961.

## INTRODUCTION

We are issuing the Information Bulletin No. 13 at this stage in order to give our readers all available information on the Conference and Congress which will take place in Montreal from the 2nd to the 12th August, 1961. No. 14, giving the last-minute details, should reach you just before you leave for Canada.

This Bulletin covers the period from December 1960 to April 1961. It also contains some results of the 46th Meeting of the Executive Committee which was held at the beginning of April in order to prepare for the Montreal Conference.

The following events have taken place during this interval of time:

- 46th Meeting of the Executive Committee, Basle, from 4 to 6 April, 1961
- Meeting of the Committee on Space Research, Florence, from 7 to 18 April
- First International Congress on Metallic Corrosion, London, 10 to 15 April
- Symposium on Enzymes in Clinical Chemistry, Ghent, from 14 to 15 April
- Meeting of the Biological Nomenclature Commission, Amsterdam, from 17 to 18 April
- 12th Meeting of CITCE, Brussels, from 24 to 29 April
- Congress of Analytical Chemistry, Budapest, from 24 to 29 April
- Symposium on the Detection and Use of Tritium in the Physical and Biological Sciences, organized by the International Atomic Energy Agency in Vienna, from 3 to 10 May, 1961.



## I. QUESTIONS FINANCIÈRES

Vous avez trouvé dans le Bulletin d'Information n° 12 un projet de budget pour 1961 et tout le monde a pu se rendre compte des difficultés auxquelles notre Trésorier eut à faire face. Même en épuisant nos réserves, il semblait impossible de donner satisfaction à nos Sections, Divisions et Commissions qui, toutes, auraient voulu se rendre à Montréal. Certaines d'entre elles ont dû renoncer complètement à se réunir et d'autres ont été forcées de choisir un endroit moins éloigné et, partant, moins onéreux.

C'est avec plaisir que je vous informe que, grâce à des dons substantiels de l'industrie, et surtout à une augmentation appréciable des cotisations annuelles de quelques membres adhérents, le revenu de notre Union sera considérablement plus élevé que prévu. Le Comité exécutif lors de sa réunion à Bâle, prenant note avec satisfaction de cette nouvelle situation, a été en mesure d'autoriser d'autres Commissions ou Divisions à se réunir à Montréal augmentant, par une participation accrue de congressistes, les chances de succès du XVIII<sup>e</sup> Congrès et de la XXI<sup>e</sup> Conférence.

Un problème, par contre, n'a pas encore trouvé de solution satisfaisante: vous vous souvenez des efforts entrepris en vue d'affréter un avion spécial, permettant de réaliser des économies considérables et d'ouvrir notre Conférence dans l'avion déjà.

Bien que nous ayons envoyé plus de 2000 invitations à se joindre à ce voyage en commun, les réponses favorables furent très inférieures à ce que nous escomptions. D'autre part, nous avons dû constater qu'il est très difficile d'arranger un voyage en commun de manière à satisfaire chacun.

L'agence de voyage choisie par nos amis canadiens, Thos. Cook & Son, a finalement pu étudier la possibilité d'un arrangement avec Air France. A condition qu'il y ait un nombre suffisant de participants, un avion de cette compagnie aérienne quittera Paris et Londres le 1<sup>er</sup> août, pour arriver à Montréal dans l'après-midi du même jour. Vous trouverez, sous Annexe A, la troisième circulaire d'invitation à prendre part à ce voyage, ainsi qu'un questionnaire. Le tout dernier délai pour les inscriptions auprès de l'agence Cook est le 15 juin.

Le Comité exécutif, dont l'idée maîtresse est d'assurer le succès à nos amis canadiens et les récompenser ainsi de tous leurs efforts, a décidé de payer, comme frais de séjour \$50 aux Canadiens, Américains et Mexicains, et \$150 à tous les autres.

Les membres titulaires, à condition qu'ils figurent dans les Comptes Rendus de la XX<sup>e</sup> Conférence, ou qu'ils aient été élus et approuvés *officiellement* depuis Munich par les organismes adhérents et le Comité exécutif, seront remboursés de leurs frais de voyage selon tarif en classe économique ou selon affrètement spécial.

Plusieurs organismes adhérents ont proposé d'assumer eux-mêmes les frais de voyage de leurs membres titulaires. Pour certains pays très lointains, un arrangement spécial a été prévu, permettant de ménager les fonds de l'IUPAC.

Les formules provisoires de remboursement des frais de voyage et de séjour, distribuées par le Secrétaire général, serviront de base pour les paiements qui seront effectués du 3 au 5 août à Montréal, par les soins de l'Union de Banques Suisses ou d'une succursale à Montréal, qui aura son bureau soit à l'Hôtel Queen Elisabeth, soit au Centre social de l'Université.



## **Procédure à suivre pour obtenir le remboursement des frais de voyage ou/et de séjour**

Il est bien entendu que le Trésorier et le Secrétaire général sont à la disposition des pays membres et de tous les membres titulaires. Notre premier soin est donc de faciliter autant que possible les formalités administratives, etc. Le moyen le plus simple pour nous serait de distribuer les fonds de l'Union au début de l'année et de laisser chaque Section, Division et Commission les dépenser comme bon leur semble. Pourtant une telle façon de procéder conduirait sans aucun doute l'Union à la faillite, car les dépenses envisagées sont beaucoup plus importantes que le revenu. En outre, ce revenu ne nous parvient en général qu'à la fin de l'année en cours. Nolens volens nous devons vous demander de remplir un minimum de formalités et nous prions tous les Secrétaires des Sections, Divisions et Commissions de bien vouloir nous apporter leur précieux concours.

La meilleure manière de procéder, tout en évitant des frais supplémentaires et des formalités administratives superflues, serait que les Secrétaires des Sections, Divisions et Commissions informent le Secrétaire général à temps de tous les détails des réunions envisagées et lui demandent les formules de remboursement. Ces formules devraient être envoyées avec l'invitation et l'ordre du jour de la réunion aux membres des Sections, Divisions et Commissions, en les priant de compléter ces formules et de les signer. Le Président de Section, après avoir contresigné ces formules, devrait les retourner au Trésorier qui s'occuperait alors des démarches nécessaires avec la banque pour le remboursement des frais lors de la réunion de la Section, Division ou Commission. Il est bien entendu que, seuls, les membres titulaires figurant dans les Comptes Rendus et assistant à toute la réunion sont autorisés à recevoir le remboursement de leurs frais de voyage.

## I. FINANCIAL MATTERS

A provisional budget was given in Information Bulletin No. 12 so that everyone could see the difficulties our Treasurer had to face. Even if we used up our reserves, it seemed to be impossible to satisfy all our Sections, Divisions and Commissions, all of whom wished to meet in Montreal. Some of them had to abandon the idea of holding a meeting and others had to choose a meeting place not so far distant and therefore less expensive than Montreal.

It is, therefore, a great pleasure to be able to tell you that, due to substantial donations from Industry and particularly also to an appreciable increase in the annual subscription of several member countries, the income of the Union will be considerable higher than was foreseen. The Executive Committee, at its meeting in Basle, noted the improved situation with satisfaction and was able to authorize other Commissions and Divisions to meet in Montreal, thus improving the chances of success of the XVIIIth Congress and XXIst Conference by increasing the number of participants.

On the other hand, one problem has not yet been solved: you will remember that efforts were being made to charter a special aeroplane which would permit considerable economies and would be a good start to the Conference. Although we sent more than 2000 invitations to join this flight, the favourable replies were very much fewer than expected. However, we realized from the beginning that it would be very difficult to arrange group travel to please everybody.

The Travel Agency chosen by the Canadian Organizing Committee, Thos. Cook & Son, were eventually able to consider the possibility of an arrangement with Air France. Provided there are sufficient applications, a plane of this line will leave Paris and London on the 1 August, arriving in Montreal in the afternoon of the same day. In Appendix A you will find the Third Circular concerning this flight and an application form. The very latest date for application to Thos. Cook & Son was 15 JUNE.

The Executive Committee, whose chief aim is to guarantee the success of the meeting and thus to recompense our Canadian colleagues for all their efforts, decided to pay \$50 subsistence to the Canadians, Americans and Mexicans and \$150 to the others.

Titular members, on condition that their names appear in the Comptes Rendus of the XXth Conference or that they have been elected since the Munich meeting and *officially* approved by the Adhering Organizations and the Executive Committee, will be reimbursed for their travelling expenses according to the economy class tariff or charter flight.

Several Adhering Bodies have offered to pay the travel expenses for their titular members. For certain very distant countries a special arrangement has been devised in order to save IUPAC funds.

The provisional claim forms for reimbursement of travelling expenses and subsistence, distributed by the Secretary General, will serve as a basis for payments which will be made from 3 to 5 August in Montreal, through the offices of the Union Bank of Switzerland or a branch in Montreal, either at the Queen Elizabeth Hotel or at the Social Centre of the University.

## **Procedure for making claims for travel and subsistence allowances**

It is well understood that the Honorary Treasurer and the Secretary General are in the first instance the obedient servants of the member countries and Titular Members. Our first concern therefore is to interfere as little as possible with administrative regulations, etc. The easiest way for us would be to distribute the funds of the Union at the beginning of the year and to let all Sections, Divisions and Commissions deal with their money as they like. Yet, such a procedure would doubtless result in insolvency for the Union because the expenses budgeted are much higher than the income and, moreover, this income is received toward the end of the year only. Nolens volens, we must therefore ask for a minimum of formalities and we kindly invite all Secretaries of Sections, Divisions and Commissions to be good enough to lend us their valuable help.

The best way to facilitate payment of travel and, if any, subsistence allowances and to avoid additional costs and superfluous administrative formalities would be for the Secretaries of Sections, Divisions and Commissions to inform the Secretary General in good time about all details of the meetings proposed and to ask for the claim forms. These claim forms should be sent, *together with the invitation and the agenda* for the meeting, to the members of Sections, Divisions and Commissions who are requested to complete them. They should be signed and countersigned by the Section President and subsequently forwarded to the Honorary Treasurer who will make the necessary arrangements through the Union's bankers for payment of the allowances at the meeting of the Section, Division or Commission.

It is well understood that only Titular Members who are listed in the Comptes Rendus and who attend the full meeting are entitled to receive travel allowances.



## II. RELATIONS AVEC L'ICSU

### Rapport du Secrétaire général au Conseil International des Unions Scientifiques

(Règlement ICSU, règle 4.1)

*Période:* de la 8<sup>e</sup> Assemblée générale de l'ICSU, Washington, octobre 1958 à la 9<sup>e</sup> Assemblée générale de l'ICSU, Londres, octobre 1961.

#### I. Membres du Comité exécutif

Les membres suivants ont été élus en 1959 au Comité exécutif pour 4 ans lors de la XX<sup>e</sup> Conférence (qui doit être considérée comme l'Assemblée générale de l'IUPAC):

Prof. W. ALBERT NOYES, Jr., Président  
Prof. W. KLEMM, Vice-président  
Sir ALEXANDER TODD, Vice-président  
Sir CHARLES DODDS, Trésorier  
Académicien B. A. KASANSKI, membre élu  
Prof. M. LETORT, membre élu  
Dr R. MORF, Secrétaire général

#### II. Organismes adhérents

Le Chili et le Venezuela ont été supprimés de la liste, étant donné qu'ils ne paient plus leur cotisation depuis de nombreuses années.

La Bulgarie et la Chine (Taiwan) ont été admis comme nouveaux organismes adhérents de l'Union.

La Belgique, le Danemark et les Pays-Bas ont sollicité leur admission dans une catégorie supérieure. Cette demande devra être ratifiée par le Conseil lors de la Conférence en août 1961.

#### III. Changements dans les Commissions

##### a) Section de Chimie physique:

La Commission de *Cinétique des Réactions chimiques* a cessé toute activité.

##### b) Section de Chimie minérale:

(i) La Commission des *Métaux purs et leur Protection*. Par suite des difficultés techniques rencontrées, cette Commission a décidé d'interrompre son travail.

(ii) La Commission de *Géochimie* a reçu au cours des dernières années une aide financière considérable de la part de l'Union (hors de toutes proportions par rapport aux autres Commissions). Elle a entrepris des démarches en vue de son incorporation soit au sein de l'Union internationale de Géodésie et de Géophysique, soit dans la nouvelle Union des Sciences géologiques. Néanmoins, la *Géochimie* – comme telle – fera toujours partie intégrante de la Section de Chimie minérale.

##### c) Section de Chimie analytique:

Le nom et les tâches de quelques Commissions de cette Section ont été modifiés en vue d'une coopération plus étroite avec d'autres Sections.

##### d) Section de Chimie appliquée:

(i) La Sous-Commission des *Vitamines* a terminé son travail qui, selon les tâches qui lui étaient imparties, se bornait à quelques problèmes. En conséquence, elle a été dissoute. Les résultats obtenus sont d'une impor-

tance considérable et nous espérons qu'une nouvelle Commission, s'occupant de ce domaine, sera créée à l'avenir.

(ii) La Commission sur la *Normalisation du Matériel de Laboratoire* a été dissoute.

(iii) Une Commission des *Additifs alimentaires* a été créée, s'occupant de la question des additifs alimentaires permis.

Le *Comité des Publications* de l'IUPAC, ayant donné son avis sur la future procédure à suivre concernant ce problème, a été dissous.

#### IV. Affiliation et coopération avec d'autres organisations internationales

Le Congrès international de Catalyse, le Congrès mondial du Pétrole et le Congrès international de la Corrosion ont sollicité leur affiliation auprès de l'IUPAC.

Le meilleur moyen de coopérer avec les organismes existant dans le domaine du Génie chimique, avec l'OMS (Organisation mondiale de la Santé), la FAO (Organisation des Nations Unies pour l'Alimentation et l'Agriculture) et avec l'ISO (Organisation internationale de Normalisation), est toujours à l'étude.

#### V. Activités de l'IUPAC

Une liste complète des activités de l'IUPAC, depuis le dernier rapport de 1958 à l'ICSU, figure sous Annexe A du rapport original.

Les manifestations suivantes ont été particulièrement importantes:

1. Symposium sur la Chimie de Coordination, Londres, 6-11 avril 1959. A l'occasion de l'anniversaire de la découverte de la théorie de Kekulé sur l'atome de carbone à 4 valences, un Symposium a été organisé par la Chemical Society de Londres, sous la présidence du Professeur EMELEÚS. Cette manifestation connut un immense succès. De futurs colloques sur la chimie de coordination seront organisés sous l'égide de l'IUPAC.
2. Symposium sur l'Analyse par Radio-activation, Vienne, 1<sup>er</sup>-3 juin 1959. Une coopération très utile a été instaurée avec l'Agence internationale de l'Energie atomique à Vienne par le co-patronage de ce Symposium.
3. La XX<sup>e</sup> Conférence internationale, organisée en Allemagne et suivie du XVII<sup>e</sup> Congrès. Plus de 3000 chimistes ont assisté à ce Congrès qui était principalement consacré à la chimie minérale. Plusieurs colloques eurent lieu en parallèle avec ce Congrès et figurent dans l'Annexe A du rapport original.

Six conférences plénières furent présentées durant le Congrès:

«Recent Investigations on Oxidation and Sulfuration Reaction of Metals in the neighbourhood of the Equilibrium», par le Prof. J. BÉNARD

«Chemical Behaviour and Bonding of Boron-Hydride Derivatives», par le Prof. A. B. BURG

«Comparative Chemistry of the Actinide and Lanthanide Element», par le Prof. B. B. CUNNINGHAM

«Compounds of Fluorocarbon Radicals with Metals and Non-Metals», par le Prof. H. J. EMELEÚS

«Ionic Reactions in Non-Watery Solutions», par le Prof. V. GUTMANN

«Reaction-Mechanism of the Metal-Carbon-Bond and Some Aspects regarding the Reactivity of Metallo-Organic Compounds of Heavy-Metals», par le Prof. O. A. REUTOW.

Les conférences de section suivantes eurent également lieu:

«Some Aspects of Transition Metals of Carbon Bonds in Metal Carbonyls, Cyanides and Unsaturated Hydrocarbon Complexes», par le Prof. G. WILKINSON

«From Structure to Synthesis or Organometallic Compounds», par le Prof. E. ROCHOW

«The Hydrides and Complex Hydrides of the Transition Metals», par le Dr J. CHATT

«The Reactions of Alkali Metal Hydrides and Borohydrides with Lewis Acids of Boron and Aluminium», par le Prof. H. C. BROWN

«The Chemistry of the Cis- and Trans-Urans compared with the Chemistry of the Lanthanides», par le Prof. M. HAISSINSKY

«Hypofluorites», par le Prof. G. H. CADY

«Survey on the Production and the Qualities of Metals of Extreme Purity», par le Prof. A. E. VAN ARKEL

«On the new Properties of Metals of High Purity obtained by physical Methods e.g. the Smelting Zone Technique», par le Prof. G. CHAUDRON

«The Use of non-aqueous Solvents in preparative Inorganic Chemistry», par le Prof. C. ADDISON

«Calculation and Optical Measurement of Gas-Equilibrium at High Temperature», par le Prof. K. WIELAND

«Chemical Equilibria and Reactions in Semiconductors», par le Prof. C. S. FULLER

«Some Structural Relationships in Ternary Transition Metal Oxides and Relation between Crystal Structure and Magnetic Structure of some Transition Metal Oxides», par le Prof. W. E. GORTER

C'est par une conférence du Prof. A. BUTENANDT, Directeur de l'Institut Max Planck de Chimie biologique, sur les «New natural Pigments, their Biogenesis and Physiological Significance», que fut ouvert le Symposium sur la Chimie biologique.

Environ 600 chimistes du monde entier présentèrent des communications originales.

### *VI. Nouvelle table des poids atomiques*

La Commission des poids atomiques a réalisé une coopération vraiment fructueuse avec d'autres disciplines de la science.

Jusqu'à maintenant il y avait deux sortes de tables de poids atomiques; celle employée par les physiciens, basée sur l'isotope pur de l'oxygène-16, et celle employée par les chimistes, basée sur l'oxygène naturel. La question devint urgente lorsqu'on découvrit que l'oxygène naturel est un mélange d'isotopes et, par conséquent, ne peut convenir comme base pour une échelle de poids atomiques. Après un immense travail, une nouvelle échelle put être établie, basée sur l'isotope pur de carbone-12 (chiffre entier) qui fournit aux physiciens un seul isotope comme étalon et n'a pas nécessité de grands changements dans les poids atomiques.

Lors de la XX<sup>e</sup> Conférence, le Conseil de l'IUPAC a décidé d'adopter la nouvelle table de poids atomiques, à condition que l'Union internationale de Physique pure et appliquée l'accepte également.

L'Union internationale de Physique pure et appliquée, lors de son Assemblée générale de 1960, s'est déclarée d'accord d'accepter cette proposition et la nouvelle table des poids atomiques, basée sur la nouvelle échelle, sera établie sous peu. C'est une très importante décision qui concerne tous les domaines de la science.

### *VII. Publications*

Une liste complète des publications de l'IUPAC est fournie à la page 54 de ce Bulletin.

Le nouveau journal de l'IUPAC «Pure and Applied Chemistry» est fondé et le premier numéro est sorti de presse à fin 1960, contenant les



comptes rendus du Symposium sur l'Analyse par Radio-activation de Vienne. Le premier numéro prouve l'évidence de l'utilité de ce nouveau journal qui éditera principalement les publications des congrès et symposia qui étaient, jusqu'ici, publiées dans de nombreux journaux, souvent peu accessibles au public et aux bibliothèques.

### *VIII. Activités futures de l'IUPAC*

Je ne mentionnerai ici que le début d'une coopération avec l'Unesco en vue d'une étude générale de l'enseignement de la chimie.

Toutes les activités de l'IUPAC sont mentionnées sous Annexe A de ce rapport.

### *IX. Représentation IUPAC*

Au cours des dernières années, des efforts ont été accomplis pour que le monde entier soit représenté au sein de l'IUPAC, et des membres titulaires d'Asie, d'Afrique du Sud et d'Australie ont été élus. Au début, les activités de l'IUPAC étaient plus ou moins confinées à l'Europe occidentale mais, en 1960, un Symposium sur la Chimie des Produits naturels fut organisé à Melbourne, Canberra et Sydney. Il connut un très grand succès.

Cette année, ce seront la Conférence et le Congrès qui se tiendront au Canada.

Il est à espérer que des moyens financiers suffisants seront mis à notre disposition afin que nous puissions poursuivre dans cette voie.

Bâle, le 21 mars 1961

Original anglais signé par le  
Dr RUDOLF MORF, Secrétaire général

## II. RELATIONS WITH ICSU

### Report of the Secretary General to the International Council of Scientific Unions

(*ICSU By-Laws, rule 4.1*)

*Interval:* 8th General Assembly of ICSU, Washington, October 1958 to 9th General Assembly of ICSU, London, October 1961.

#### *I. Members of the Executive Committee*

The following members were elected to the Executive Committee for a period of four years at the XXth Conference 1959 (which is to be regarded as the General Assembly of IUPAC):

Prof. W. ALBERT NOYES, Jr., President  
Prof. W. KLEMM, Vice-President  
Sir ALEXANDER TODD, Vice-President  
Sir CHARLES DODDS, Treasurer  
Academician B. A. KASANSKI, elected member  
Prof. M. LETORT, elected member  
Dr. R. MORF, Secretary General

#### *II. Adhering Bodies*

Chile and Venezuela have been removed from the list as they have not paid their annual dues for many years.

Bulgaria and China (Taiwan) have been admitted as new members of the Union.

Belgium, Denmark and the Netherlands have asked to be placed in a higher category and this matter will be decided by the Council at the Conference in August 1961.

#### *III. Changes in Commissions*

##### *(a) Physical Chemistry Section:*

The Commission on *Chemical Reaction Kinetics* has ceased its activity.

##### *(b) Inorganic Chemistry Section:*

(i) The Commission on *Pure Metals*. Due to technical difficulties, this Commission decided to discontinue its work.

(ii) The Commission on *Geochemistry*. This commission has received considerable financial support from the Union (out of all proportion to the other commissions) during the last few years. It has taken steps towards affiliation either with the International Union of Geodesy and Geophysics or with the newly established Union of Geological Sciences. Nonetheless, Geochemistry, as such, will always be an integral part of the Inorganic Chemistry Section.

##### *(c) Analytical Chemistry Section:*

A few commissions in this section have been modified with regard to the name and terms of reference with the aim of achieving closer cooperation with other sections.

##### *(d) Applied Chemistry Section:*

(i) The Sub-Commission on *Vitamins* has completed its work, which was limited to a few problems by the terms of reference, and has been dissolved. The results achieved are of considerable importance and it is to be hoped that a new commission on this subject will be created in future.

(ii) The Commission on *Standardisation of Laboratory Materials* has been dissolved.

(iii) A Commission on *Food Additives* has been created. It is dealing with the question of permissible additives to food.

The IUPAC *Publication Committee*, having given its advice on the future publication policy of the Union, has been dissolved.

#### *IV. Affiliation and Cooperation with other international organizations*

The International Congress on Catalysis, the International Petroleum Congress and the International Congress on Corrosion have been affiliated to IUPAC.

The best means of cooperation with existing bodies in the field of Chemical Engineering, with WHO, with FAO (Food and Agriculture Organization) and with ISO (International Standards Organization) are still under discussion.

#### *V. Activities of IUPAC*

A full list of the Union's activities since the last report to ICSU in 1958 is given in Appendix A of the original report.

The following events were of particular importance:

1. Symposium on Coordination Chemistry, London, 6-11 April, 1959.  
On the occasion of the anniversary of Kekulé's theory of the four valency Carbon atom, a symposium was organized by the Chemical Society of London under the chairmanship of Professor EMELÉUS. This event was an outstanding success. Future symposia on Coordination Chemistry will be held under IUPAC sponsorship.
2. Symposium on Radioactivation Analysis, Vienna, 1-3 June, 1959.  
Very useful cooperation was achieved with the International Atomic Energy Agency in Vienna through cosponsorship of this Symposium.
3. The XXth International Conference was organized in Germany and was followed by the XVIIth International Congress. More than 3000 chemists attended this Congress which dealt mainly with Inorganic Chemistry. Several Symposia were organized in association with this Congress and are listed in Appendix A of the original report.

Six main lectures were given during the Congress:

'Recent Investigations on Oxidation and Sulfuration Reaction of Metals in the neighbourhood of the Equilibrium', by Prof. J. BÉNARD

'Chemical Behaviour and Bonding of Boron-Hydride Derivatives', by Prof. A. B. BURG

'Comparative Chemistry of the Actinide and Lanthanide Element', by Prof. B. B. CUNNINGHAM

'Compounds of Fluorocarbon Radicals with Metals and Non-Metals', by Prof. H. J. EMELÉUS

'Ionic Reactions in Non-Watery Solutions', by Prof. V. GUTMANN

'Reaction-Mechanism of the Metal-Carbon-Bond and Some Aspects regarding the Reactivity of Metallo-Organic Compounds of Heavy Metals', by Prof. O. A. REUTOW

The following Section Lectures were also delivered:

'Some aspects of Transition Metals of Carbon Bonds in Metal Carbonyls. Cyanides and Unsaturated Hydrocarbon Complexes', by Prof. G. WILKINSON

'From Structure to Synthesis of Organometallic Compounds', by Prof. E. ROCHOW

'The Hydrides and Complex Hydrides of the Transition Metals', by Dr. J. CHATT



'The Reactions of Alkali Metal Hydrides and Borohydrides with Lewis Acids of Boron and Aluminium', by Prof. H. C. BROWN  
 'The Chemistry of the Cis- und Trans-Urans compared with the Chemistry of the Lanthanides', by Prof. M. HAISSINSKY  
 'Hyperfluorites', by Prof. G. H. CADY  
 'Survey on the Production and the Qualities of Metals of Extreme Purity', by Prof. A. E. VAN ARKEL  
 'On the new Properties of Metals of High Purity obtained by physical Methods e.g. the Smelting Zone Technique', by Prof. G. CHAUDRON  
 'The use of non-aqueous Solvents in preparative Inorganic Chemistry', by Prof. C. ADDISON  
 'Calculation and Optical Measurement of Gas-Equilibrium at High Temperatures', by Prof. K. WIELAND  
 'Chemical Equilibria and Reactions in Semiconductors', by Prof. C. S. FULLER  
 'Some structural Relationships in Ternary Transition Metal Oxides and Relation between Crystal Structure and Magnetic Structure of some Transition Metal Oxides', by Prof. W. E. GORTER  
 The Symposium on Biological Chemistry was opened by Prof. A. BÜTENDIJK, head of the Max-Planck-Institut of Biological Chemistry, who gave a lecture entitled 'New natural Pigments, their Biogenesis and Physiological Significance'.

Some 600 chemists from all over the world read original papers.

## VI. New Scale of Atomic Weights

The Commission on Atomic Weights has achieved very good cooperation with other disciplines.

Up to now there have been two sets of tables of atomic weights; that used by physicists, based on the pure isotope Oxygen-16 and that used by chemists which is based on natural Oxygen. The matter became urgent when it was discovered that natural Oxygen is a mixture of isotopes and therefore an unreliable basis for the scale of atomic weights. After a great deal of work a new scale was formulated based on the pure isotope 12 (whole number) of Carbon, which provided the physicists with a single isotope as standard and necessitated only small changes in atomic weights.

At the XXth Conference, the Council of IUPAC decided to adopt the new scale of atomic weights provided that the International Union of Pure and Applied Physics was prepared to accept it.

The International Union of Pure and Applied Physics, at its General Assembly in 1960, agreed to accept this proposal and the new atomic weight tables based on the new scale will be calculated in the near future. This is a most important decision which concerns the whole field of science.

## VII. Publications

A complete list of IUPAC publications is given on page 54 of this Information Bulletin.

The new IUPAC journal, 'Pure and Applied Chemistry', has been created and the first number came out at the end of 1960, containing the Proceedings of the Symposium on Radioactivation Analysis in Vienna. This first issue illustrates the utility of the new journal which is mainly concerned with the publication of congresses and symposia. These were previously published in a variety of journals and were sometimes not readily available to the public and to libraries.

### *VIII. Intended activities of IUPAC*

I shall only mention here the initiation of cooperation between IUPAC and Unesco with the aim of surveying the teaching of Chemistry.

All the activities of IUPAC are listed in the Information Bulletin a reprint of which is appended.

### *IX. IUPAC Representation*

In recent years efforts have been made to give IUPAC a truly world-wide representation and titular members have been elected from Asia, South Africa and Australia. At first, activities were more or less confined to Western Europe, but in 1960 a symposium on the Chemistry of Natural Products held in Melbourne, Canberra and Sydney was a great success and the Conference and Congress in 1961 will be held in Canada.

It is to be hoped that sufficient financial means will be available to continue this process.

Basle, 21 March, 1961

Dr. RUDOLF MORF  
Secretary General

### **Joint Commission on Applied Radioactivity**

#### *Triennial report for the 9th General Assembly of ICSU*

In the past three years, the Joint Commission on Applied Radioactivity has worked under the chairmanship of Dr. SELIGMAN, Deputy Director General in charge of the Division of Research and Isotopes at the International Atomic Energy Agency. Mr. C. FISHER, Chef du Service des radioéléments at the French Commissariat à l'Energie atomique, has been appointed as a Secretary. Meetings have been held in Paris in March 1958 and October 1959 and in Copenhagen in September 1960.

The main objectives of the Commission have been:

- to suggest practical methods for the standardization of radioisotopes,
- to establish means of disseminating information,
- to promote exchange of information in specialized fields through international symposia.

#### *(1) Standardization of radioisotopes:*

The Commission has studied the problem of the usefulness of radium as a standard of radioactivity.

It was first suggested that a sub-committee should be appointed under the chairmanship of Prof. PANETH in order to propose the choice of a radioactivity standard and to work out the best methods of measuring radioactivity in relation to all commonly used nuclides. This proposal did not receive the agreement of ICSU and other steps had to be taken.

A panel of experts was assembled in 1960 under Prof. B. KARLIK and after discussion of the report of this panel, the Commission agreed on the following points.

An actual radium source is not well suited as a standard of radioactivity except for intercomparison with radium itself. The need seems to be for a standard method to be chosen for each radioactive nuclide or group of nuclides with similar radiation properties.

It was suggested that it should be possible to select a limited number of radioactive nuclides of conveniently long half life and different radiation energies and to ascribe a standardized method to the measurement of each of these species. This method should be verified by exchange of samples between relevant laboratories. It should then be possible to relate every radioactive nuclide to one of the selected group having similar characteristics in order to apply the right method of standardization.

The views thus expressed by the Commission have been communicated to International Bureau of Weights and Measures, International Commission on Radiological Protection, International Organization for Standardization and a number of leading national laboratories engaged in the preparation of radioactive standards.

### *(2) Dissemination of information:*

At the suggestion of the Commission, the IAEA has prepared a list of references to publications dealing with procedures and techniques that have been developed in nuclear chemistry and physics and can be of interest to people not working in the field of radioactivity.

This list of references has been sent to about 250 institutions and the Commission will wait for answers before deciding whether to continue with this work.

### *(3) Conferences and symposia:*

Two scientific meetings have been organized in cooperation with the IAEA and the Commission:

- a symposium on activation analysis was held in Vienna from 1 June to 3 June, 1959,
- a symposium on the detection and use of tritium in the physical and biological sciences is to be held in Vienna from 3 May to 10 May, 1961.

Other meetings have been suggested by the Commission on the following subjects:

- radioactive methods of age determination,
- use of radioisotopes in microneurophysiology.

Help of IAEA is of great value to the Commission for organization of such conferences.

## **Transactions of the Triple Commission for Spectroscopy, Minutes of the Ottawa Meeting, 5-6 September, 1960**

The first meeting of the Triple Commission for Spectroscopy was held at the National Research Council in Ottawa on 5-6 September, 1960. The following members were present:

### *IUPAP*

Sir GORDON SUTHERLAND (NPL, Teddington)

### *IAU*

Dr. G. HERZBERG (NRC, Ottawa)

Dr. C. M. SITTERLY (NBS, Washington)

### *IUPAC*

Prof. R. C. LORD\* (MIT, Cambridge, Mass.)

\* representing Dr. H. W. THOMPSON (Oxford)



Prof. S. E. FRISCH (Leningrad), the other IUPAP member, was unable to attend.

In addition, the following corresponding members attended:

### *IUPAP*

Prof. J. G. PHILIPS\* (University of California, Berkeley)

\* instead of Prof. F. A. JENKINS (deceased)

### *IAU*

Prof. G. RACAH (The Hebrew University, Jerusalem)

### *IUPAC*

Dr. R. N. JONES (NRC, Ottawa)

Prof. H. H. NIELSEN (Ohio State University, Columbus) also attended, by invitation.

On the morning of 5 September, short talks were given by the following members of the staff of the National Research Council, viz., Dr. A. E. DOUGLAS, Dr. H. LEW, Dr. K. M. BAIRD, Dr. R. N. JONES and Dr. H. J. BERNSTEIN.

### *Election of President and Secretary*

In the afternoon of 5 September, the Commission held its first session. Dr. HERZBERG was elected as President. Sir GORDON SUTHERLAND was proposed as Secretary, but intimated his desire to resign at the earliest convenient opportunity. It was agreed that Prof. H. H. NIELSEN should be asked to take over as Secretary after the business of the Ottawa meeting had been completed, and that the IUPAP be asked to agree to him being at least a corresponding member of the IUPAP representation.

### *Reports of Committees*

#### *(1) Atomic Spectra*

Dr. SITTERLY presented a report on Atomic Spectra (Appendix I).

Dr. SITTERLY stressed the urgent need for more work on the spectra of rare earths, and Dr. PHILLIPS commented on the need for additional standards in the thorium spectra.

There was also some discussion on the need for wavelength standards in the short wave ultra-violet.

#### *(2) Molecular Spectra (diatomic)*

Dr. PHILLIPS gave a report (Appendix II) on the work at Berkeley using computers for the analysis of spectra of diatomic molecules.

Dr. HERZBERG presented a bibliography on the spectra of diatomic molecules which supplements the bibliography given in his treatise on diatomic molecules. Copies of this are available on application to Dr. G. HERZBERG, Pure Physics Division, National Research Council, Ottawa.

#### *(3) Molecular Spectra (polyatomic)*

There was no report from this committee because its functions had not yet been clarified. It was agreed that the functions of this committee should be discussed on the following day.

#### *(4) Atomic Wave Functions*

Prof. G. RACAH presented a report (Appendix III) on his work on atomic wave functions.

Prof. LORD undertook to find out what had been going on at the Massachusetts Institute of Technology in this field.

## Nomenclature Problems

Dr. JONES reported that the IUPAC Commission was working on some nomenclature problems in the description of vibrational modes in polyatomic molecules. Dr. HERZBERG pointed out that an unfortunate practice was growing up of quoting the lower state first instead of the upper state in describing absorption transitions in molecular spectra. It was agreed that attention should be drawn to this and that spectroscopists be urged to follow the recommendation in MULLIKEN's report that in all molecular transitions the upper state should be stated first whether the transition is in absorption or in emission.

Prof. LORD raised the question of nomenclature of the different regions of the infrared spectrum. It was agreed to recommend that the following nomenclature be adopted:

The 'near infrared' means the region between  $0.8$  to  $2.5\ \mu$  or  $12\ 500$  to  $4000\ \text{cm}^{-1}$

The 'mid infrared' means the region between  $2.5$  to  $50\ \mu$  or  $4000$  to  $200\ \text{cm}^{-1}$

The 'far infrared' means the region between  $50$  to  $1000\ \mu$  or  $200$  to  $10\ \text{cm}^{-1}$

On the morning of 6 September the Commission were invited to see the spectroscopic work being carried out in the laboratories of the National Research Council. The Commission held a closed meeting on the afternoon of 6 September.

### *Relation of the Triple Commission to the Spectroscopy Commission of IAU and IUPAC*

Dr. HERZBERG gave a brief review of how the Triple Commission had come into being as a result of the dissolution of the Joint Commission on Spectroscopy of IAU and IUPAP. He pointed out that the Spectroscopy Commission of IUPAC dealt entirely with problems in Molecular Spectra of interest to chemists, and Commission 14 of IAU now dealt largely with wavelength standards. The new Triple Commission (which is administratively a Commission of the IUPAP) will deal with spectroscopic problems of interest to physicists and of common interest to astronomers, chemists and physicists. This was agreed. It was also agreed that in matters of common interest, the rulings of the Triple Commission should be accepted by the Spectroscopy Commissions of IAU and IUPAC.

#### (a) *Wavelength Standards*

Dr. R. N. JONES presented Parts II and III of a report of the Spectroscopy Commission of IUPAC entitled 'Tables of Provisional Wavenumber Standards for the Calibration of Infrared Spectrometers', and said that IUPAC wished to issue these as having the approval of the Triple Commission. There was considerable discussion on the use of the word 'standards', and it was agreed that it would be undesirable to use this word in the description of these tables. They should be issued as 'Provisional Wavenumber Tables for the Calibration of Infrared Spectrometers'.

As a result of this discussion, it was agreed that a *Joint Subcommission A* of the IUPAC Spectroscopy Commission and of the IAU Commission 14 be set up 'to establish wavelength standards in the infrared beyond  $1\ \mu$ '. The members of this Joint Sub-Commission will be Prof. R. C. LORD (Chairman), Dr. C. J. HUMPHREYS, Dr. K. N. RAO and Prof. M. MIGEOTTE (subject to acceptance by the last three).

#### (b) *Nomenclature*

After some discussion of various nomenclature problems, it was agreed to set up a *Joint Sub-Commission B* on Symbols, Units and Nomenclature

to re-examine the symbols, units and nomenclature used in molecular spectroscopy and any other related problems of interest to the three Unions'. The members of this Commission will be Dr. HERZBERG (Chairman), Prof. NIELSEN and Prof. LECOMTE (subject to acceptance by Prof. LECOMTE).

(c) *Other Activities of the IUPAC Spectroscopy Commission*

The Secretary read a list of the activities of this Commission, outlined in a letter from Dr. H. W. THOMPSON (Chairman of that Commission), viz.,

Infrared wavelength standards  
Symbols and terminology for UV spectra (absorption)  
Terminology of molecular vibrations  
Nuclear magnetic resonance data  
Optical rotatory dispersion  
Wavelength standards for the vacuum UV  
Infrared intensities

It was agreed that (apart from the matters referred to in (a) and (b) above, there seemed to be no questions which needed to be raised with the Triple Commission at this stage. It was noted that the physicists might well have interests in work on nuclear magnetic resonance and on wavelength standards in the vacuum ultra violet which fell outside the chemical field.

(d) *Activities of the IAU Commission 14*

Dr. HERZBERG presented a brief report of the activities of this Commission (Appendix IV). There was some discussion on whether it was necessary to maintain both of the sub-commissions ((a) and (b)). Dr. HERZBERG undertook to discuss the matter with Prof. SWINGS, in particular whether the Triple Commission might take over the work of 14b.

*Activities of the Triple Commission*

It was agreed that the following activities of the old Joint Commission should be taken over by the Triple Commission:

- (1) Committee b on Atomic Spectra—to be called Sub-Commission D.
- (2) Committees c and m on Diatomic Molecules—to be called Sub-Commission E.
- (3) Committee t on Atomic Wave Functions—to be called Sub-Commission F.

After some discussion on whether there was a practicable function for Committee d on polyatomic molecules, it was decided to abolish this committee.

The question of new activities (in addition to those covered by the new Sub-Commissions A and B) was discussed.

Dr. PHILLIPS stated that he intended to continue sending the Newsletter which the late Prof. JENKINS used to circulate on Analysis of Molecular Spectra. The Joint Commission gave this their unanimous approval.

On atomic spectra Dr. SITTERLY preferred to continue with annual or triennial reports on the situation. This was agreed.

It was felt that the Joint Commission should consider taking an interest in X-ray spectroscopy and microwave spectroscopy, but no action was needed at present.

It was agreed that the Triple Commission should encourage annual symposia covering the whole range of spectroscopy, and meet each year concurrently with the symposium. The first three such symposia would be:

June 1961           Columbus, Ohio, USA  
September 1962   Tokyo, Japan  
June 1963           Columbus, Ohio, USA



Some discussion took place on getting information about the role and activities of the Triple Commission to spectroscopists. It was agreed that an attempt should be made to get reports of its activities into the following journals:

Spectrochimica Acta  
Optics and Spectroscopy  
Journal of Optical Society of America  
Nature  
Science  
Physics Today  
Spectroscopia Molecular

### *Membership of the Triple Commission*

Dr. HERZBERG reported that he did not think that the IUPAP Executive Committee would raise any objection to additional corresponding members if these were really needed to enable the Commission to carry out its work. The IUPAP Executive Committee thought that Prof. NIELSEN should be a full member while acting as Secretary. He understood that USSR wished to nominate Prof. MANDELSTAM to succeed Prof. FRISCH as a full member.

The following membership was considered desirable as from 1 January, 1961:

<i>IUPAP</i>	<i>IAU</i>	<i>IUPAC</i>
MANDELSTAM	HERZBERG	LORD
SUTHERLAND	SITTERLY	THOMPSON
NIELSEN	*RACAH	*JONES
*EDLEN	*PHILLIPS	*MIZUSHIMA

The asterisk denotes a corresponding member. Prof. LORD felt that the decision as to which two of IUPAC representatives were to be corresponding members would have to be referred to the IUPAC.

It was agreed that six years should be the maximum term of service of full members and that half of the present full members should retire at the end of 1963. HERZBERG and SUTHERLAND said they wished to do so, and it was left to IUPAC to say whether LORD or THOMPSON should retire at the same time.

All corresponding members are appointed initially for a three year term, but may be renewed for a further three years.

It was agreed that in future no individual can represent an absent member.

It was agreed that the most desirable name for the Commission was the Triple Commission for Spectroscopy.

G.B.B.M. SUTHERLAND, Secretary

### *Addendum*

(on matters arising since the Ottawa Meeting on 6 September)

(1) Prof. H. H. NIELSEN has agreed to be Secretary of the Commission from 1.1.61.

(2) IUPAP considered that Prof. NIELSEN should be a full member of the Commission. They also expressed a desire to see Dr. P. GORLICH (Jena) added to the IUPAP representation as a corresponding member.

(3) IUPAC have confirmed that Prof. LORD and Dr. THOMPSON will be full members with Dr. JONES and Prof. MIZUSHIMA as corresponding members. They wish to add Prof. J. LECOMTE as a corresponding member. Dr. THOMPSON will probably retire at the end of 1963.

(4) The final composition of the Triple Commission from 1.1.61 will therefore be as follows:

<i>IUPAP</i>	<i>IAU</i>	<i>IUPAC</i>
MANDELSTAM	HERZBERG (President)	LORD
NIELSEN (Secretary)	SITTERLY	THOMPSON
SUTHERLAND	*RACAH	*JONES
*EDLEN	*PHILLIPS	*LECOMTE
*GORLICH		*MIZUSHIMA
*Corresponding member		

## **Report on Executive Council Meeting of the Committee on Space Research COSPAR**

*held in Florence, 18 April, 1961*

At the General Assembly of ICSU (International Council of Scientific Unions) in 1958, a resolution was passed that a special Committee on Space Research (COSPAR) should be set up under the auspices of ICSU, to further, on an international scale, the progress of all kinds of scientific investigations which are carried out with the use of rockets or rocket-propelled vehicles. It is concerned with fundamental problems and does not normally concern itself with technological problems.

It is obvious that sooner or later chemists will be needed to give their advice on this developing field of research and for this reason a representative of IUPAC, Prof. E. MIESCHER, was appointed to COSPAR. At the last moment, however, he was prevented from attending the Executive Council Meeting which was held on the occasion of the Second International Space Science Symposium in Florence (7-18 April, 1961), and the IUPAC Executive Committee decided that Dr. MORF should go in his place.

The Symposium on Space Research and the COSPAR meeting were both brought into the limelight because of the first manned space flight which took place during the meeting, and consequently, all the papers and discussions were received with great interest and a very lively meeting resulted. President VAN DE HULST, at the beginning of the symposium and again during the Executive Council meeting, gave a survey of the results achieved and he underlined the strong need for cooperation and coordination of research.

Four Working Groups have been formed:

- (1) *Tracking and Telemetering*, Chairman: Mrs. A. G. MASSEVITCH (USSR)
  - (i) Sub-Group 'Optical Tracking', Chairman: Prof. F. WHIPPLE (USA)
  - (ii) Sub-Group 'Radio Tracking', Chairman: Mr. J. A. RATCLIFFE (UK)

- (2) *Scientific Experiments*, Chairman: Prof. J. BARTELS

Within this Committee *A Panel on Synoptic Rocket Soundings*, Chairman: Prof. J. BLAMONT (France), was formed.

Terms of reference: to coordinate rocket soundings which make measurements, physical or electrical, in the earth's atmosphere; and in particular to suggest and organize appropriate specific experiments. One such experiment would be to try to measure the wind pattern between 90 and 120 km simultaneously at a large number of points of the earth, by tracking a sodium cloud ejected by a rocket.

- (3) *Data and Publications*, Chairman: Dr. A. P. MITRA (India)

One sub-group of this Committee discussed SPACEWARN—an international rapid communications network for disseminating information concerning scientific satellite launchings, orbital predictions and tracking observations which has been in active existence since the International Geophysical Year.

- (4) *International Reference Atmospheres*, Chairman: Mrs. H. K. KALLMAN-BIJL (USA).

The chairmen of these 4 Working Groups gave reports on their activities at the meeting.

At the moment, the main fields of interest to chemists in space research are problems of thermodynamics and rocket propulsion fuel, but it is clear that, in future, advice of experts in the fields of Photochemistry and Spectrochemistry will also be needed.

The meeting ended with a resolution congratulating the USSR Academy of Sciences and the United States National Research Council on their great achievements in the development of space vehicles.

### *Second International Space Science Symposium*

The Symposium was divided into seven Sections as follows:

- (1) Radio and Optical Tracking
- (2) Magnetic Observations by Rockets and Satellites
- (3) Telemetry and Data Recovery
- (4) Special Events, such as July 1959 and November 1960
- (5) Recent results from Instrumented Satellite and Space Craft
- (6) International Reference Atmosphere
- (7) Scientific Research by means of small Sounding Rockets

Amongst papers of particular interest to chemists were Dr. K. I. GRINGANZ' report on results of three experiments in Interplanetary Space using three-electrode charged particle traps and Dr. GAZENKO's account of the results of medical and biological investigations on space-ships, satellites, carried out with the aim of obtaining material to make safe manned flights.

Following the success of the International Geophysical Year, it is intended to organize an International Year of the Quiet Sun (IQSY) during the period of minimum solar activity from 1 April, 1964, to 31 December, 1965.

Dr. RUDOLF MORF

### **Symposium sur la Détection et l'Emploi du Tritium dans les Sciences physique et biologique**

*Vienne, du 3 au 10 mai 1961*

(Press Release)

#### *Uses of Radioactive Hydrogen*

Vienna, 25 April 1961—More than 200 scientists are expected to take part in an international symposium on the Detection and Use of Tritium in the Physical and Biological Sciences to be held in Vienna from 3–10 May, 1961. The meeting is being organized by the International Atomic Energy Agency (IAEA) in cooperation with the Joint Commission on Applied Radioactivity of the International Council of Scientific Unions (ICSU).

In recent years, tritium, which is the radioactive isotope of hydrogen, has been increasingly used as a research tool in chemistry, physics, biology.



meteorology and hydrology. In a variety of investigations, such as the study of biological and metabolic processes, tritium or a chemical compound with tritium as one of the constituents can be used as a tracer. It is also useful in studying the effects of radiation on plants and animals or the nature of biochemical regulators such as vitamins and hormones. In hydrology a major practical use of tritium is in the study of groundwater, which is of obvious importance to irrigation plans in arid or semi-arid areas. The technique is being applied, for example, in studies on the movement of groundwater in certain parts of Greece under a project assisted by IAEA experts.

The symposium in Vienna will provide an opportunity for a review of these and other applications of tritium. The meeting will also discuss techniques of detecting tritium and the preparation of tritium compounds. Since small amounts of tritium occur in ordinary water (as a result of cosmic ray-induced reactions in the atmosphere), the distribution of tritium in nature and methods of enriching ordinary water with this isotope (so that the water can be traced or identified later) will be among the other subjects to be discussed at the symposium.

### *Scientists from 24 Countries Discuss Uses of Tritium*

Vienna, 3 May, 1961—'The program of world-wide collection of water-samples to determine tritium content undertaken by the International Atomic Energy Agency (IAEA) is of great importance, and the work of this type is important for the future of hydrology', stated Prof. WILLARD LIBBY, a prominent American nuclear scientists, before the participants of the International Symposium on the Detection and Use of Tritium in the Physical and Biological Sciences which opened today at Vienna's City Hall.

In his lecture delivered during the first session, of which he was chairman, devoted to the Distribution of Tritium in Nature, Methods of Enrichment and Applications of Tritium in Hydrology, Prof. LIBBY spoke on tritium geophysics and recent data and results obtained in measuring rain and surface water and groundwater samples, taken to trace the movement of tritium produced by bomb explosions. Prof. LIBBY stated that the tritium water method used in these measurements had promise of general geophysical use, particularly in meteorology, oceanography and hydrology. He pointed out that there existed an urgent need for making water collections for the checking of questions arising in the future. In particular, a carefully planned collection of continental rain, river, and lake waters and a wide-scale sampling of surface ocean waters was to be made in order to follow the movements of the tritium resulting from nuclear bomb explosions.

A paper presented by Mr. A. E. BAINBRIDGE, New Zealand, described a program undertaken to determine tritium concentration in a variety of New Zealand waters. The results of this program showed that tritium detection in geothermal bore waters gave additional support to existing physical and chemical evidence that geothermal steam might consist of up to 80% of heated ground water.

A paper by Mr. R. GAT, Mr. U. KARFUNKEL and Mr. A. NIZ of Israel dealt with tritium content of rainwater from the Eastern Mediterranean area. The authors stressed the usefulness of tritium as a tracer for the movement of water in nature and described their investigations on the tritium content of rainwater in Israel and other Eastern Mediterranean countries. The paper also dealt with some aspects of the circulation of tritium in the atmosphere following thermonuclear explosions.

A group of scientists from the United Kingdom in their paper presented at the Symposium discussed the tritium content of atmospheric methane, while Mr. E. FIREMAN of the United States of America presented a paper on the tritium content in meteorites and in a recovered satellite.

Mr. FIREMAN pointed out that there were indications that tritium was trapped in a region about the earth and that the concentration of tritium in that region was increased by a solar flare and remained large for some time after the flare. This interpretation of the data accounted for the large tritium content in the satellite material investigated by Mr. FIREMAN.

In their paper presented at the symposium, Mr. C. W. CARLSTON and Mr. L. L. THATCHER described some tritium studies carried out by the United States Geological Survey. The authors described tritium measurement research, tritium rainout study carried out in 1958 to trace the movement of atmospheric moisture from the Pacific Ocean and its distribution across the United States; and the Field Tritium Research Program of the US Geological Survey. They said that during the spring of 1961 the Geological Survey would conduct a tracer study using tritiated water as a label. The tracer-test site is at Lake McMillan, a shallow reservoir on the Pecos River near Carlsbad, New Mexico. A large amount of water leaks through the floor of the lake into an underground reservoir. Water from this reservoir discharges from springs in the Pecos River channel about three miles downstream from the lake.

The amount of tritiated water released to the reservoir would be adjusted to raise the level of the water to about 2000 tritium units. Movement of the tracer front through the underground reservoir and out of the springs would be traced by sampling the springs and observation wells between the springs and the lake. Movement of the tracer through the hydrologic system and other data would be used to estimate the volume of water in the underground reservoir and the rate of movement of the tracer through the system.

Four other papers presented during the first session were devoted to various applications of tritium in hydrology; enrichment, reconcentration and separation of tritium by various methods.

### *Opening Remarks at the Symposium on the Detection and Use of Tritium in the Physical and Biological Sciences*

By Dr. HENRY SELIGMAN

President of the Joint Commission on Applied Radioactivity  
Vienna, 3 May, 1961

I am speaking to you as President of the Joint Commission on Applied Radioactivity. As far back as early 1958 it became evident that amongst all the radioisotopes used to date, Tritium would occupy a unique place. The mere fact that it can be introduced in practically any compound has made it one of the most versatile isotopes. The, in those days, difficult detection methods for such a weak beta-emitter made it a case for itself. This we had in mind when the Joint Commission on Applied Radioactivity of which IUPAC is the mother Union, in 1958 suggested a symposium on this subject.

Unfortunately the funds of our Commission were very limited and we were, therefore, unable to support such a symposium on our own. Luckily the IAEA was at that time becoming active in arranging conferences and symposia for the following years and we were only too pleased to suggest

this joint symposium to that organization, which by now—as you can see for yourself—has perhaps the best facilities, including some of the best scientific interpreters in the world and able scientific man power, for holding an international, scientific symposium of this kind.

I would like to thank the Director General of the IAEA, Mr. COLE, for taking up our suggestion so rapidly and arranging this symposium dealing with subjects, the importance of which is still increasing daily. I am sure that this meeting will be a great success.

### **Survey of Teaching of Chemistry Co-operation Unesco/IUPAC**

At the request of Unesco, a meeting took place in Zurich on 2 February, 1961, between Dr. HILLIARD RODERICK—Deputy Director, Natural Sciences Department, Unesco—and Dr. RUDOLF MORF, the Secretary General of the International Union of Pure and Applied Chemistry (IUPAC). A letter dated 4 January from Dr. RODERICK to the Secretary General and a letter from President NOYES (10 January, 1961) were used as a basis for the discussions.

Unesco desires to develop much closer relationships with IUPAC and plans to make a survey of the curriculum, syllabus, laboratory experiments and pre-requirements in Chemistry taught in the different faculties and the first two years of the university in a number of countries.

The purpose of the study is first to assemble information about course content and laboratory experiment in various universities which have a very good reputation with the scientific community. This information will be made available to the Member States of Unesco in such a way that it will enable them to determine minimum requirements and also possibly optimum requirements in each subject. This is of particular interest to those states in the process of organizing or reorganizing their university system. In the field of chemistry, one can envisage that we will gather information about syllabus and laboratory experiments in faculties such as engineering, agriculture, medicine, science and teacher training during the first two years of the university.

Other parts of Unesco's programme for improving science teaching at university level, which may be of mutual interest to the Union, are:

(a) A programme of arranging for selected films in various aspects of science teaching to be distributed to universities that request them at cost. Arrangements are being made with the International Scientific Films Association for it to develop the apparatus of distribution, but the selection of films in chemistry would require the participation of the Union.

(b) A second Latin-American Meeting on Higher Agriculture Education (1961). Unesco intends to participate in this meeting and might find the aid of IUPAC very useful in choosing 2 or 3 experts of different nationalities who will be able to prepare under contract a working paper on chemistry teaching in Higher Agriculture Schools.

(c) Regional seminars on basic science teaching at university level to be held in Tropical Africa in 1962. IUPAC may be able to help Unesco choose 3–4 candidates of different nationalities to give lectures on chemistry teaching and guiding discussions during this Seminar.

Dr. MORF pointed out that in many universities the curriculum varies according to the ultimate field of specialization of the students, e.g. Bio-chemistry, Organic Chemistry, etc., and this variation must be taken into consideration.



In many countries a very high proportion of graduate chemists are employed in industry and the Secretary General considered that it would be a good plan to consult industry, in the countries to be surveyed, as to its requirements.

Unesco needs some preliminary information and data before they can prepare their activity programmes for the next period and this means that if closer cooperation between IUPAC and Unesco is to be achieved a few decisions must be taken by the Executive Committee of IUPAC within a short time.

*Decisions to be taken by the Executive Committee of IUPAC in Basel  
(April 1961)*

(1) The financial stress on IUPAC for 1961 prohibits the creation of any additional committee. It was therefore suggested that, as an intermediate measure, the Executive Committee should deal with these problems at the beginning and should try to get a scheme under way provided of course that they decide that closer cooperation with Unesco in this field is indicated. This must therefore be decided at the meeting in Basel in order to meet the requirements of the Unesco time-table.

Either Dr. KOVDA or Dr. RODERICK should be invited to attend this meeting although it is unlikely that they will be available.

(2) Unesco wish to appoint a 'rapporteur' in chemistry with the aid and recommendation of IUPAC who would ask members of the Union to select those institutions in their own country which offer the best training in chemistry as preparation for agriculture, medicine, etc. The Executive Committee must therefore also decide in Basel about nomination of such a 'rapporteur'.

(3) At the same time it must be decided which 5 or 6 countries should be asked to take part in the scheme. These member countries should then be asked to start their surveys immediately after the Basel meeting and to appoint an expert within their delegation to deal with this problem in a working committee at the Montreal Conference.

8 February, 1961

RUDOLF MORF

**Tenth Meeting of ISO/TC 61 Committee on Plastics**

*17-22 October, 1960, Prague (Czechoslovakia)*

The 10th meeting of Technical Committee 61 on Plastics of the International Standardization Organization (ISO/TC 61) was held in Prague, Czechoslovakia, on 17-22 October, 1960. Fifteen countries were represented by 112 delegates and observers.

The nine Working Groups held 18 sessions and treated approximately 40 of the items currently listed on the programme of work of ISO/TC 61.

Five Draft ISO Recommendations were revised editorially and are now ready for submission to the ISO Council for approval and publication. They pertain to (1) standard atmospheres for conditioning and testing plastics, (2) determination of the melt flow index of polyethylenes, (3) compression molding test specimens of thermoplastic materials, (4) injection molding test specimens of thermoplastic materials, and (5) compression molding test specimens of thermosetting materials.

Three new Draft ISO Recommendations were approved for circulation to the ISO Member Bodies for letter ballot. They describe methods for the determination of stiffness properties of plastics as a function of temperature by means of a torsional test, tensile properties, and determination of maximum temperature and rate of temperature increase during the setting of polyester resins.

Five Draft Proposals were prepared for consideration by the ISO/TC 61 Member Bodies. They relate to determinations of (1) percentage of monomer and low molecular weight polymer in polyamides, (2) relative viscosity of polyamides, (3) water content of polyamides, (4) resistance to changes in color caused by natural light (second draft), and (5) change of mechanical properties after contact with chemicals (second draft).

#### *Committee has prepared 40 standards*

Four ISO Recommendations prepared by ISO/TC 61 were published during the past year, bringing to nine the total of ISO Recommendations pertaining to plastics. Fourteen Draft ISO Recommendations have been printed and are expected to be approved by the ISO Council for promulgation this year. Four Draft ISO Recommendations approved at the 1959 meeting in Munich are in the process of review and balloting by the ISO Member Bodies. Thus, some 40 international standards have reached a preliminary or final form during the first 10 years of operation of ISO/TC 61, representing the cooperative efforts of plastics engineers from 21 participating countries. Included among these documents is a list of over 800 equivalent terms in English, French, and Russian, soon to be augmented by the equivalents in other languages.

#### *Tenth group organized*

A resolution to organize a new Working Group on Cellular Materials was approved at the second plenary session of ISO/TC 61. The work of this new group will be coordinated with that of Working Group H on Flexible Cellular Materials of ISO/TC 45 on Rubber under the aegis of a Joint Coordinating Body.

The 1961 meeting of ISO/TC 61 will be held in Turin, Italy, 2-7 October, and the 1962 meeting in Warsaw, Poland.

### III. RELATIONS AVEC LES PAYS MEMBRES

Illustrant ce que je vous ai dit sous point I, Questions financières, je vous indique ci-après les montants proposés par les organismes adhérents comme cotisations annuelles, tels qu'ils sont connus à la date du 1<sup>er</sup> mai 1961 :

	\$	
Argentine . . . . .	450	
Australie . . . . .	800	
Autriche . . . . .	450	
Belgique . . . . .		
Brésil . . . . .	800	
Bulgarie . . . . .	450	
Canada . . . . .	2600	
Chine (Taïwan) . . . .	800	
Colombie . . . . .	450	
CSR . . . . .	800	
Danemark . . . . .	1600	
Finlande . . . . .	450	
France . . . . .	2600	+ les frais pour 12 membres
Allemagne . . . . .	5000	+ \$1.001*
Grande-Bretagne . . .	10000	+ \$2.526* + 8415**
Hongrie . . . . .	450	
Inde . . . . .	450	
Irlande . . . . .	100	
Israël . . . . .	800	
Italie . . . . .	2600	
Japon . . . . .	2600	
Luxembourg . . . . .	100	
Pays-Bas . . . . .	2600	
Norvège . . . . .	800	
Pologne . . . . .	800	
Portugal . . . . .	450	
Roumanie . . . . .	450	
Espagne . . . . .	800	
Suède . . . . .	2600	
Suisse . . . . .	2600	
Afrique du Sud . . . .	800	
Turquie . . . . .	450	
République arabe unie	450	
USA . . . . .	10000	
URSS . . . . .	2600	+ \$6.615*
Yougoslavie . . . . .	450	

\* part des frais de voyage assumée par l'organisme adhérent pour Montréal.

\*\* don supplémentaire volontaire.

Par suite de l'augmentation des cotisations, certains pays ont passé dans une catégorie supérieure, changement qui devra être ratifié par le Bureau et le Conseil à Montréal.

Désireux d'éveiller parmi les pays lointains l'intérêt pour les affaires de l'Union, le Comité exécutif – dans sa dernière réunion à Bâle – a discuté la question d'assurer une meilleure répartition géographique des membres



titulaires dans les diverses Sections et le Bureau. Ainsi que le Président l'a exprimé dans son rapport statutaire, il est regrettable que de nombreux pays membres ne soient pas représentés au Bureau et dans les Comités de Section. Toutefois une augmentation du nombre total des membres du Bureau est impossible, car il est fixé par les Statuts. Deux propositions furent alors envisagées par le Comité exécutif:

- a) inviter 4 représentants supplémentaires à prendre part à la réunion du Bureau en tant qu'observateurs, sans droit de vote, mais avec remboursement intégral de leurs frais de voyage;
- b) inviter les pays membres, non représentés au Bureau et sans membre titulaire, à déléguer une personne à la réunion du Conseil, en tant que « Councillors-at-large », dont les frais de voyage seraient également payés par l'Union.

Etant donné qu'aucune de ces propositions ne pourrait entrer en vigueur sans approbation préalable par le Conseil, il fut

« *Décidé:*

- (i) de soumettre ces propositions au Conseil à Montréal,
- (ii) d'étudier très soigneusement les conséquences financières de ces propositions.

Le Secrétaire général prend acte. »

Ce problème sera soumis à la discussion lors de la réunion du Conseil à Montréal; aussi les organismes adhérents sont invités à se préparer dans ce sens afin de pouvoir faire eux-mêmes des suggestions en vue de remédier à cette situation.

#### *Royaume-Uni*

Le Dr D. C. MARTIN nous informe de la nouvelle composition des autorités de la Royal Society:

Président	Sir HOWARD FLOREY, Oxford
Trésorier	Sir ALEXANDER FLECK
Secrétaire (biologie)	Sir LINDOR BROWN, Oxford
Secrétaire (physique)	Sir WILLIAM HODGE, Cambridge
Secrétaire (relations extérieures)	Sir PATRICK LINSTED, London

### III. RELATIONS WITH THE MEMBER COUNTRIES

To illustrate what has been said under Point I above (Financial Matters) the proposed annual subscriptions from the Adhering Organizations, as far as is known up to the 1 May, 1961, are given below:

	\$	
Argentina . . . . .	450	
Australia . . . . .	800	
Austria . . . . .	450	
Belgium . . . . .		
Brazil . . . . .	800	
Bulgaria . . . . .	450	
Canada . . . . .	2600	
China (Taiwan) . . . .	800	
Columbia . . . . .	450	
Czechoslovakia . . . .	800	
Denmark . . . . .	1600	
Finland . . . . .	450	
France . . . . .	2600	+ expenses for 12 members
Germany . . . . .	5000	+ \$1,001*
Great Britain . . . .	10000	+ \$2,526* + 8,415**
Hungary . . . . .	450	
India . . . . .	450	
Ireland . . . . .	100	
Israel . . . . .	800	
Italy . . . . .	2600	
Japan . . . . .	2600	
Luxembourg . . . . .	100	
Holland . . . . .	2600	
Norway . . . . .	800	
Poland . . . . .	800	
Portugal . . . . .	450	
Rumania . . . . .	450	
Spain . . . . .	800	
Sweden . . . . .	2600	
Switzerland . . . . .	2600	
South Africa . . . . .	800	
Turkey . . . . .	450	
United Arab Republic	450	
USA . . . . .	10000	
USSR . . . . .	2600	+ \$6,615*
Yugoslavia . . . . .	450	

\* portion of travel expenses to Montreal assumed by Adhering Organization.

\*\* voluntary supplementary donation.

As a consequence of increased subscriptions certain countries have passed into a higher category, a change which will have to be ratified by the Bureau and Council in Montreal.

With the aim of encouraging the more distant countries to take an active interest in the affairs of the Union, the Executive Committee, at its last meeting in Basle, discussed ways and means of obtaining a better geo-

graphical distribution of titular members in the various sections and the Bureau. As the President has pointed out in his statutory report, it is regrettable that several member countries are not represented on the Bureau nor on the Section Committees. However, an increase in the total number of Bureau members is impossible as this number is clearly laid down in the Statutes. Two proposals were considered:

- (a) to invite four additional representatives to attend the Bureau meetings as non-voting observers, whose expenses would be paid in full;
- (b) that those member countries who are not represented on the Bureau and have no titular members could be invited to delegate one person to the Council meeting ('Councillors-at-large') whose expenses would also be paid by the Union.

As neither of these proposals should be put into effect without proper approval by the Council, it was

*'Resolved:*

- (i) that these proposals be submitted to the Council in Montreal,
- (ii) that the financial implications of the proposals be carefully studied. The Secretary General to act.'

This problem will be submitted for discussion during the Council meeting in Montreal and the Adhering Organizations are invited to study the question so that they can offer suggestions for remedying the situation.

### *The United Kingdom*

Dr. D. C. MARTIN informs us that the officers of the Royal Society are now as follows:

President	Sir HOWARD FLOREY, Oxford
Treasurer	Sir ALEXANDER FLECK
Biological Secretary	Sir LINDOR BROWN, Oxford
Physical Secretary	Sir WILLIAM HODGE, Cambridge
Foreign Secretary	Sir PATRICK LINSTEAD, London



#### **IV. ACTIVITÉ DE L'UNION PAR L'INTERMÉDIAIRE DES SECTIONS ET COMMISSIONS**

Dans le Bulletin d'Information N° 12, nous avons annoncé (voir bas de la page 2) le résultat d'un groupe de travail de la Section de Chimie biologique:

«Abbreviations and Symbols for Chemical Names of Special Interest in Biological Chemistry.»

Les épreuves s'étant égarées à la poste, nous n'avons pu joindre ces règles provisoires au Bulletin d'Information N° 12, aussi vous les trouverez ici sous Annexe B.

Nous vous invitons à soumettre vos commentaires et corrections éventuelles aux membres de ce sous-comité, soit MM. les Prof. L. HELLERMANN, W. KLYNE et E. SLATER, ou au Dr R. MORF.

Des tirages à part de ce rapport provisoire ont été adressés à une liste de personnalités indiquées par ce sous-comité. D'autres copies peuvent être obtenues auprès du Secrétariat général de l'IUPAC.

#### **IV. ACTIVITY OF THE UNION THROUGH THE SECTIONS AND COMMISSIONS**

In the Information Bulletin No. 12 we announced the completion of 'Abbreviations and Symbols for Chemical Names of Special Interest in Biological Chemistry'

by a working committee of the Section of Biological Chemistry.

Unfortunately the proofs had been mislaid in the post and we were unable to include these provisional rules in Information Bulletin No. 12 and they will be found in Appendix B of this Number.

You are invited to submit your comments and corrections, if any, either to the members of the sub-committee, Prof. L. HELLERMANN, W. KLYNE, and E. SLATER, or to the Secretary General, Dr. R. MORF.

Reprints of this report have been sent to a list of persons recommended by the sub-committee. Other copies may be obtained from the Secretary General of IUPAC.

## Minutes of the Meeting of Presidents of Sections

Held at the rooms of the Royal Society, Burlington House, London W. 1.  
October 10th, 1960

*Present:* Prof. H. J. EMELÉUS, Inorganic Chemistry Section (in the Chair)  
Prof. R. BELCHER, Analytical Chemistry Section  
Dr. J. H. BUSHILL, Applied Chemistry Section  
Prof. H. ERDTMAN, Organic Chemistry Section  
Prof. E. J. KING, Biological Chemistry Section  
Prof. W. KUHN, Physical Chemistry Section.

In attendance as Secretary, Mr. H. J. BUNKER (Secretary—Applied Chemistry Section).

The Secretary-General, Dr. MORF, joined the meeting at the afternoon session.

(1) At the request of Prof. KUHN, Prof. EMELÉUS took the Chair.

(2) Consideration of the document submitted by the Secretary-General on "Rules for the Activities and the Creation of Commissions".

The meeting first considered this document which reads as follows (for original document, see Appendix):

### *"The Creation and Function of Commissions"*

#### *Procedure to be followed for the creation of new Commissions*

Whenever the creation of a new Commission seems necessary the Section Committee and the Executive Committee of the Union must apply to the Bureau for the appointment of an ad hoc Committee of three members which should consider the proposal in the light of the rules (below) and then report back to the Bureau. This report, if favourable to the creation of a new Commission, should contain an intimation as to its duration which must not exceed a maximum of 4 years. If the problem can be solved within a more limited time, the existence of the Commission has to be restricted accordingly.

#### *Function of Commissions*

I. Commissions are appointed with the object of dealing with such problems of Chemistry and Applied Chemistry as need an agreement on an international scale. Example: agreement on symbols, terminology, units, abbreviations, representation of data and characterisation of standards (substances and reactions) for international reference.

II. Terms of reference of a Commission should be drafted so as to leave no doubt on the exact scope of the circumscribed task, and subsequently agreed by the Bureau and confirmed by Council.

III. Any alteration or amplification of the terms of reference of an existing Commission, including the creation of Sub-Commissions, is subject to agreement by the Bureau, to be confirmed by Council.

IV. Subjects requiring the relegation of experimental research to scientists, although most propitious to the advancement of Science, are not usually within the scope of the Union.

V. All the Sections, Divisions and Commissions who may wish to submit reports for publication should give notice of their projects so that they may be considered in relation to the broad situation of the Union's publi-

cations. Consultations on these projects should be carried out before detailed work is begun. The compilation of data should not be encouraged unless the possibility for publication on a commercial or other basis is ascertained."

### (3) *Consideration of Existing Commissions*

The meeting proceeded to a detailed consideration of the present state of activity of all Commissions, having in mind the necessity for reducing expenditure in the Union.

It was agreed:—

#### (a) *Physical Chemistry Section*

All the Commissions are necessary and are working.

While it was appreciated that the *Macromolecular Commission* and the *Plastics and High Polymers Division* of the Applied Chemistry Section have many common interests, it was noted that both bodies feel that nothing whatever is to be gained by fusion, and it was agreed that it would not be to the benefit of either party to attempt amalgamation.

#### (b) *Inorganic Chemistry Section*

The President of the Section indicated that the *High Temperature Commission* in his Section might consider a merger with the appropriate Commission of the Physical Chemistry Section. He would discuss the matter in Montreal. He considered the Commission should be keeping a closer eye on what could usefully be done in the international field.

The *Geochemistry Commission* is concerned with such topics as rock analyses. The meeting considered that the activities of the Commission should be scrutinised in the light of the "Rules for Commissions" (considered above under (2)) and that transfer to the Geological Union be considered.

The *Nomenclature Commission* proposed sending only one or two members to Montreal.

No new Commissions are envisaged at present in this Section.

#### (c) *Organic Chemistry Section*

It was considered that some economy might be effected by the Nomenclature Commission. Dr. MORF suggested that an invitation to this Commission might be expected from America in which case a considerable saving might be effected.

#### (d) *Biological Chemistry Section*

The *Protein Commission* would discuss how much longer it should continue, and will report on this at Montreal.

The *Clinical Chemistry Commission* has done important work in stimulating the Clinical Societies in different countries and has been engaged in the setting up of standards for substances (e.g. Haemoglobin). Its activities should continue.

The *Nomenclature Commission* has done well and its recommendations have been internationally adopted. Its work should continue.

No new Commissions are envisaged, except possibly on some aspects of Toxicology.

The Section hopes to sponsor a Symposium on clinical enzymes in Ghent and hopes to secure a small subvention for this purpose from the Union.



(e) *Analytical Chemistry Section*

The President of the Section considered that all the Commissions in this Section are justifying their existence.

(f) *Applied Chemistry Section*

The *Trace Elements in Food Commission* will shortly be finishing its work.

The *Food Additives Commission* has issued one report and is continuing its work: it is represented on an FAO-WHO committee.

The Bureau has agreed that this Commission should concern itself with the determination of additives in food in conjunction with the WHO-FAO committee.

The meeting recommended that the Commission should remain in the Food Division of this section.

The other three Commissions are *Characterization of Fusel Oils* and *Characterization of Dried Yeasts* (both in the Fermentation Division), and *Cellulose Analysis* (in the Pulp, Paper and Board Division).

On the topic of a possible reduction in the number of Divisions, the President of the Section indicated that all of them were active. The Secretary-General emphasized the importance of the work of the Divisions to many of the smaller countries contributing to IUPAC who were unable to benefit as fully as the larger countries from some of the activities of the "purer" sections of the Union.

It was agreed that there appeared to be no advantage to be gained by the reduction or the transfer of Divisions of the Applied Chemistry Section to other Sections. It was also agreed that a very useful purpose would be served by the presentation of a memorandum setting out the activities of the Divisions of the Section.

(4) *Budget for 1961*

The Secretary-General mentioned that considerable savings might be effected if charter flights could be arranged for the Montreal meetings.

It was agreed to recommend the elimination or reduction of various items in the budget, as follows:—

<i>Physical Chemistry</i>	<i>Saving in dollars</i>
Omit Macromolecular Symposium subvention . . . . .	2 000
<i>Inorganic Chemistry</i>	
Omit Geochemistry subvention . . . . .	7 255
Omit High Temperature Symposium subvention . . . . .	2 000
<i>Organic Chemistry</i>	
Omit Nomenclature Commission subvention	
if meeting with American Abstracts Committee . . . . .	5 000
Omit Coordination Chemistry Symposium subvention . . . . .	2 000
<i>Biological Chemistry</i>	
Reduce administrative expenses to 200 dollars . . . . .	300
<i>Analytical Chemistry</i>	
Omit Microchemistry Symposium subvention . . . . .	2 000
Reduce administrative expenses . . . . .	?
<i>Applied Chemistry</i>	
Omit Pesticides Symposium subvention . . . . .	5 000
Omit Fermentation Division meetings* . . . . .	2 000
Total saving between . . . . .	22 500
and . . . . .	27 500 dollars

\* It is recommended that the 4 year term of the two Commissions of this Division be extended if necessary for the completion of their work in 1962.

Other points made during the discussion on budgetary savings were:—

- (a) The number of Titular members could be reduced gradually and replaced by Associate members.
- (b) Compulsory attendance of Commissions at Union Conferences could be abolished.
- (c) In view of the gap between income and expenditure, the contributions from many member countries should be increased, as they are not at present commensurate with the size and importance of such countries.

#### 5. *Montreal Meeting.*

Various items in connection with the Conference were considered as follows:—

(a) Section Presidents should, within three weeks, notify the Secretary-General of the dates on which they wish their Commissions (and Divisions) to meet, including the number of times etc.

(b) A formal meeting of Section Presidents and Secretaries should be held some time during the Conference period. If necessary, a very informal meeting of Section Presidents only might also be considered.

(c) In connection with future appointments of Section Officers it was decided to recommend that

- (i) Section Presidents should have freedom to select their own Secretaries, to ensure the efficient running of their Sections.
- (ii) To achieve the above object, one place on the Section Committee should be left vacant so that the President can fill it with his selection for Secretary.
- (iii) This scheme should not operate until vacancies in Secretaryships occur.
- (iv) The same principle should apply to Divisions and Commissions, since it is considered that increased efficiency would thus be achieved at all levels.

#### 6. *Adhering Bodies.*

It was felt that, in some cases, Industry has not found its proper rôle within the National Bodies and it was decided that provision might be made in the Statutes for the interest of Chemical Industry.

#### 7. *Officers.*

It would increase efficiency if a potential President of a Section were elected a Vice-President of the Section at least two years before being elected President.

#### (8) *Contact with Chemical Industry.*

It was recommended that the Union as such should not contact Industry or Commercial Firms but that this should be done by the National Bodies.

#### (9) *Section Autonomy.*

It is felt that the President of a Section, and the Bureau should be able to make proposals to improve the composition of a Section, Division or Commission and not have to leave it entirely to members of, for example,

Commission. The meeting wishes to endorse the principle of Section autonomy but feels that the Section Committee needs some right to general control of Commissions Membership. If Presidents and Secretaries of Sections are *ipso facto* members of their Divisions and Commissions they have the right to attend the meetings of these bodies and to advise on the selection of members of Commissions, etc. One Section President indicated that he felt that the Section Committee, when they felt that circumstances made desirable, should have power to dissolve a Commission.

The meeting took note that in the Applied Chemistry Section Commissions report to Divisions which would, in the circumstances envisaged, recommend to the Section Committee what action should be taken.

The meeting felt that it would be difficult to operate finances through the Section and recommends the rejection of the suggestion that Section autonomy should also hold for financial problems.

#### (10) *Publication Problems.*

The meeting seeks information from Council on the question of publication. Does the Union claim the right to publish the proceedings of a Symposium (which it may have supported but for which it has not paid)? The meeting queries the wisdom of forcing Bodies which organise Congresses and Symposia to have the Union publish the Proceedings.

The meeting unanimously wishes to express its concern because of delays which have occurred in the publication of documents and expresses the hope that steps will be taken to ensure a satisfactory solution to this fundamental matter.

During the general discussion it was suggested that more than one publisher might be necessary, due to the large volume of work involved.

#### (11) *Topics for future Congresses and the problem of arranging Symposia.*

The meeting feels that more help could be given to the Secretary-General in the collection of information of forthcoming scientific meetings throughout the world which might be of interest to IUPAC. It feels that Section Presidents could do much in this connection. The meeting also wished to call that it felt that in future, before the Union accepts an invitation to hold a conference and congress in a country, it should allocate the topics for the programme and should consult the Section Committees concerned.

#### (12) *Commissions on Food Additive Problems, and on Toxic substances and carcinogens.*

The President of the Applied Chemistry Section pointed out that a Commission on Food Additive Problems is already in existence in his section as part of the Food Division and is working.

The President of the Biological Chemistry Section agreed to look into the question of the other Commission (Toxic substances and Carcinogens), in particular on the technical information already available in various countries. At the moment, it was his opinion that there may be no need for the proposed Commission.

#### (13) *Memorandum on Tasks of Section Officers.*

The rough draft of this document (which will be published as an Appendix to the Minutes of the 45th Meeting of the Executive Committee) was noted and Presidents of Sections were asked to send comments to Professor MELÉUS in order that the material could be redrafted and edited.



(14) *Generic names.*

It was considered that this topic should be discussed by the Nomenclature Commission in 1961, possibly at a meeting in Montreal.

(15) *Next Meeting.*

General satisfaction was expressed at the success of the current meeting of Section Presidents and it was hoped that it could become an annual event. Furthermore, it was decided that if possible a meeting in the early part of June next year preparatory to the Montreal Conference and Congress might be extremely useful.

## **Rules for the Activities and the Creation of Commissions**

accepted by the Bureau in London on 10th April, 1958,  
modified by the Bureau in Munich on 25th August, 1959.

Owing to financial claims which could not be met, occurring in some instances to the Union from the highly qualified and laborious treatment of scientific subjects by some of the Union's Commissions, a clear circumscription of the tasks to be accomplished by the Commissions became imperative. Another reason for asking for precision resulted from the decision to pay retrospectively some subsistence allowances to the two Nomenclature Commissions, as well as to members of "well working" Commissions, a procedure which will discriminate the work of different Commissions.

- I. Commissions are appointed with the object of dealing with such problems of Chemistry as need an agreement on an international scale. Example: agreement on symbols, terminology, units, abbreviations and representation of data.
- II. Terms of reference of a Commission should be drafted so as to leave no doubt on the exact scope of the circumscribed task, and subsequently agreed by the Council.
- III. Any alteration or amplification of the terms of reference of an existing Commission, including the creation of Subcommissions, is subject to agreement by the Council.
- IV. Subjects requiring the relegation of experimental research to scientists although most propitious to the advancement of Science, are not usually within the scope of the Union.
- V. The compilation of data should not be encouraged unless the possibility for publication on a commercial or other basis is ascertained.
- VI. All the Sections, Divisions and Commissions who may wish to submit reports for publication should give notice of their projects so that they may be considered in relation to the broad situation of the Union's publications. Consultations on these projects should be carried out before detailed work is begun, if finances are required for their completion.

## **Procedure to be followed for the Creation of new Commissions**

Whenever the creation of a new Commission seems necessary the Section Committee and the Executive Committee of the Union must apply to the Bureau for the appointment of an *ad hoc* Committee of three members which should meet twice and then report back to the Bureau. This report, if favourable to the creation of a new Commission, should contain an intimation as to its duration which must not exceed a maximum of 4 years. If the problem may be solved within a more limited time, the existence of the Commission has to be restricted accordingly.

## Commission on Molecular Structure and Spectroscopy

The following corrections should be made in the Comptes Rendus of the 20th Conference, Munich 1959:

- (i) page 31, line 34. For 'M. K. WILSEN, Tufts College', read 'M. K. WILSON, Tufts University'.
- (ii) page 185, line 46. Add R. R. BRATTAIN to the list of newly appointed Associate Members.
- (iii) page 187, line 16. For '*not* recommended' read '*now* recommended'.
- (iv) page 188, line 43. For 'dioxyde' read 'dioxide'.

The Commission has continued its work actively since the meetings at Munich and Bologna, both by correspondence and by unofficial meetings between members in both Europe and the USA, at no cost to the Union. The sub-committee on infra-red wavenumber standards has met several times during 1960 in Washington and elsewhere, and a number of titular and associate members were able to hold an unofficial meeting during the Gordon Conference at Meriden, USA, in August 1960.

The report on infra-red wavenumber standards has now been completed for the range 4000–600  $\text{cm}^{-1}$ . The recommended data have been collected in two parts, one for use with grating spectrometers of higher resolving power, and the other for small grating or prism spectrometers which are more generally used in applied chemical work. The report is now in the hands of the IUPAC publishers and is scheduled for publication early in 1961. It is intended in the near future to extend the region of standard infra-red wave numbers to the region below 600  $\text{cm}^{-1}$ , in a further report.

There have been further discussions on a form of presentation of nuclear magnetic resonance data for chemists which might be acceptable to both European and American workers. Among other organizations, the American Petroleum Institute, the American Society for Testing Materials, The British Institute of Petroleum, and the Chemical Society have been consulted. It is hoped shortly to be able to present an agreed recommendation for this.

A draft recommendation on the most desirable terminology and format for optical rotatory dispersion data has been prepared and submitted to leading specialists in this field. Although some differences of opinion are still under discussion, it should be possible very soon to make definite proposals.

Members of the Commission have been examining possible standards for infra-red band intensities, and progress will be reviewed at Montreal. Also, possible wavelength standards in the far ultraviolet are being examined. It has also been decided to extend the terminology for molecular vibrations which was considered earlier, with its translation into different languages.

At the suggestion of IUPAP, a Triple Commission on Spectroscopy formed from IUPAP, IUPAC and IAU has now definitely been established, and following discussions with the IUPAC Executive Committee it has been agreed to appoint H. W. THOMPSON and R. C. LORD as IUPAC members, with S. MIZUSHIMA, R. N. JONES and J. LECOMTE as corresponding members. The Triple Commission held a preliminary meeting at Ottawa in September 1960, when by special arrangement R. C. LORD and R. N. JONES attended, and it expects to meet again at Columbus in June 1961. The Triple Commission has already given provisional approval to the infra-red wavenumber standards report mentioned above.

27 December, 1960

H. W. THOMPSON



## Errata

### Commission des Macromolécules

Sir HARRY MELVILLE, Président de cette Commission, a attiré notre attention sur une erreur qui s'est glissée dans le Bulletin d'Information N° 12, p. 21, § 2. Sous «Futures réunions», il faut lire 1963 et non 1965 comme date de la réunion qui aura lieu après celle de Montréal en 1961.

## Errata

### Commission on Macromolecules

Sir HARRY MELVILLE, President of this Commission, has drawn our attention to a mistake in Information Bulletin No. 12, p. 21, para. 2. Under the heading 'Future Meetings' the date of the next meeting after Montreal should read 1963 and not 1965.

## Report on IUPAC Publications 1957-1961

The new publications policy which was initiated at Paris (1957) and amplified at Munich (1959) is now proving to be fully justified. From the world-wide sales of IUPAC publications during the past few years it is clear that the Union's work is becoming more widely known, and also that a high scientific value is being placed upon many of these publications. It is also pleasing to acknowledge the co-operation of members of the Commissions and Divisions who have been responsible for the reports and other documents, and to state that amicable solutions have been found with so many different parties for the publication of Symposia to mutual advantage. While the progress will be more directly evident by the time of the forthcoming Montreal meeting, it may be useful to outline the present position.

The new policy was explained in Bulletins 8, 21 (1959), 9, 13, 46 (1959) and 11, 37, 60 (1960) and a memorandum dated 31 October, 1959, was circulated to Presidents of Commissions, Divisions and Sections. Prior to June 1960, when a contract was signed with Butterworths to start the new journal *Pure and Applied Chemistry*, reports were published as separate issues in book or pamphlet form. Of these, more than 2200 bound copies of the Organic Chemistry Rules and nearly 2000 copies of the Inorganic Chemistry Rules have so far been sold. These rules have also been reprinted in the Journal of the American Chemical Society, Journal of the Chemical Society (London), and as translations in Journals of other national Societies. Arrangements to permit this reprinting in the approved scientific journals of all countries at no royalty cost to the national bodies concerned were made between the Union and its publishers by payment of an agreed fee by the Union. It is estimated that in this way some 25000 copies of the rules have already been distributed, and some thousands of reprints are being purchased for further distribution. Other sales so far have included about 2000 copies of the Kekulé Symposium, more than 1000 of the Report on the Classification of High Polymers, 850 of that on the Determination of Toxic Substances, 700 of the Manual on Physico-chemical Symbols, and some hundreds of each of five other Commission reports.

The first issue of the Journal was published in September 1960 and it is expected that by July 1961 two complete volumes will have appeared. These will include the Symposia on Radioactivation Analysis (Vienna), Organic Chemistry of Natural Products (Australia), Toxic Substances (Prague), Thermodynamics (Wattens), the Report on Standard Wave-numbers for Infra-red Calibration, and Dissociation Constants of Acids and

Bases (Kortum), as well as numerous other Commission reports and resolutions. It must again be emphasized that each of these main items will be available as separate reprints, suitably bound when appropriate, in addition to appearing in the Journal. For example, 1500 separate copies of the Symposium on Radioactivation Analysis have already been sold in addition to those distributed through the Journal. The number of regular subscribers to the Journal is expected to increase rapidly during the coming months as it becomes better known. In this connexion, thanks are due to the American Chemical Society and to the Chemical Society of London for their offers to publicize the Union's work, and it is hoped that other national Societies will co-operate in the same way.

The Union will now receive some revenue from the sales of these publications. This should compensate for the payments, mentioned above, to enable all countries to reprint the Nomenclature Rules freely, but it is hoped that when the position has become more clearly established, the income may be sufficient to defray also, in part at least, the cost of work by Commissions and Divisions.

Under the terms of the contract made between IUPAC and Butterworths, the Union will receive an agreed number of free copies of its publications, authors of reports and papers 25 free copies, extra reprints can be purchased at reduced prices, and approved national organizations can purchase copies of publications in bulk at a discount. The sale prices of all publications are agreed between the publishers and the Editorial Board.

A number of requests have already been received from national scientific societies, industrial firms and individual scientists to reprint extracts of reports or recommendations which have appeared in recent IUPAC publications. Wherever possible within the terms of the contract, it is hoped to assist national Societies to reprint freely in languages other than English, provided that permission is first obtained and suitable acknowledgment is made. In other cases, agreement has been reached by payment of a small royalty fee to be shared between the Union and the publishers.

Much thought has been given to the problems of the publication of Symposia held under the auspices of the Union. There appears to be a growing feeling, internationally, that the publication of all Symposia *in extenso* is reaching undesirable proportions. Evidence is accumulating that much scientific work is being published by some authors in several places, and this practice can only increase the problems of abstracting, indexing and search for data, as well as increasing the cost of scientific publications for both libraries and individuals. Many also feel that scientific discussions would often be more valuable if contributors were not always bound to the subsequent publication of their remarks. At the same time, authoritative surveys and critical reviews will be valuable to both younger and older workers. In the light of such considerations, it may be preferable in general to follow the policy of publishing the invited and main lectures at some of the Symposia and not to exercise the right to include in the Journal other papers which may be more suitably published in the appropriate national periodicals. In some circumstances, of course, it may be desirable to act otherwise, and cases will be considered on their specific merits. In any case, it is desirable to maintain a high standard of scientific content in the Union's Journal and the Editorial Board is considering appropriate plans to achieve this.

Arrangements have been made to include in forthcoming issues of the Journal the essential parts of the Symposia on Enzymes (Ghent 1961), Spectroscopy (Amsterdam 1961), Macromolecular Chemistry (Montreal 1961), Wood Chemistry (Montreal 1961) and the proceedings of other

future meetings including some of these planned for 1962. There will also be numerous Commission reports which have already been promised or which may arise after the Montreal meeting. It should be possible very soon to reduce the delay between receipt of manuscript and date of publication to that which is normal with other scientific journals. It must however be remembered that when the collected set of papers of a Symposium is concerned, delay caused by one author in returning corrected proofs, or arising from any single unsatisfactory original manuscript, will delay the entire publication. Authors and those responsible for documents are therefore asked to co-operate in this respect.

In order to assist the Editorial Board in its work, and to ensure rapid publication, it is very important that those responsible for the preparation of Commission reports, or others who are arranging Symposia, should give advance information about them to the Editorial Board and the Secretary General, providing where relevant the information laid down in Bulletin *II*, page 60 (1960). Decisions about sponsorship can then be made when necessary by the Executive Committee, and delays may be avoided.

27 April, 1961

H. W. THOMPSON



**V. XXI<sup>e</sup> CONFÉRENCE ET XVIII<sup>e</sup> CONGRÈS, MONTRÉAL 1961**  
**XXI<sup>e</sup> Conférence de l'Union internationale de Chimie pure et appliquée**

*Ordre du jour des réunions du Bureau et du Conseil à Montréal. 2-5 août 1961*

- 1<sup>o</sup> Rapport statutaire du Président sur l'état général de l'Union
- 2<sup>o</sup> Adoption des Comptes Rendus de la XX<sup>e</sup> Conférence
- 3<sup>o</sup> Ratification de l'élection d'un Comité des Finances
- 4<sup>o</sup> Ratification de l'élection d'un Comité de Rédaction
- 5<sup>o</sup> Rapport biennal du Trésorier, commentaires du Comité des Finances
- 6<sup>o</sup> Siège de l'Union (voir Chap.I, art.1, § 5 des Statuts)
- 7<sup>o</sup> Proposition du Comité national britannique concernant la sauvegarde des intérêts de l'industrie chimique au sein de l'IUPAC
- 8<sup>o</sup> Organismes adhérents
  - a) Adoption des nouveaux organismes adhérents éventuels
  - b) Adoption du changement de catégorie de certains organismes adhérents
- 9<sup>o</sup> Adoption du budget provisoire pour 1962 et 1963
- 10<sup>o</sup> Limitation du nombre des membres titulaires dans les Divisions et Commissions
- 11<sup>o</sup> Ratification par le Bureau des décisions prises par le Comité Exécutif
- 12<sup>o</sup> Ratification par le Conseil des décisions prises par le Bureau depuis la XX<sup>e</sup> Conférence
- 13<sup>o</sup> Adoption des rapports des Présidents de Section préalablement soumis par écrit au Bureau et au Conseil
- 14<sup>o</sup> Procès-verbaux des réunions des Présidents de Section - Londres, 1960-1961
- 15<sup>o</sup> Décision finale concernant la nouvelle table des poids atomiques
- 16<sup>o</sup> Rapport du Comité ad hoc chargé de définir les fonctions des autorités de l'Union, des Sections, Divisions et Commissions (Président: Prof. Verkade)
- 17<sup>o</sup> Problèmes concernant les publications et rapport de l'Editorial Board
- 18<sup>o</sup> Recommandations au sujet des unités fondamentales de mécanique - système MKSA-CGS
- 19<sup>o</sup> Proposition concernant des règles provisoires de nomenclature (stéroïdes, abréviations, etc.)
- 20<sup>o</sup> Copyright et traduction
- 21<sup>o</sup> Règlement concernant l'élection et la durée du mandat des autorités de l'Union et des membres des Commissions
- 22<sup>o</sup> Problèmes concernant la Section de Chimie appliquée
- 23<sup>o</sup> Génie chimique
- 24<sup>o</sup> Coopération éventuelle avec l'OMS - «generic names»
- 25<sup>o</sup> Coopération éventuelle avec l'ISO
- 26<sup>o</sup> Rapport des Présidents de Section sur les résultats de la Conférence
- 27<sup>o</sup> Rapport du Comité des Finances
- 28<sup>o</sup> Election de trois membres du Bureau  
Ratification des élections faites par les Sections
- 29<sup>o</sup> Réunions prévues pour 1962 et 1963
- 30<sup>o</sup> Date et lieu de la XXII<sup>e</sup> Conférence et du XIX<sup>e</sup> Congrès
- 31<sup>o</sup> Programme et sujets des futurs Congrès (voir résolution des Présidents de Section du 9 avril 1958)
- 32<sup>o</sup> Affiliation du Congrès de la Catalyse, du Congrès mondial du Pétrole, etc.
- 33<sup>o</sup> Divers.

*Agenda of the Bureau and Council Meetings in Montreal, 2-5 August, 1961*

- (1) Statutory Report of the President on the General State of the Union
- (2) Adoption of the Comptes Rendus of the XXth Conference
- (3) Ratification of the appointment of a Finance Committee
- (4) Ratification of the appointment of a Drafting Committee
- (5) Biennial Report of the Honorary Treasurer, comments of the Finance Committee
- (6) Headquarters of IUPAC (see Chapt. I, art. 1, § 5 of the Statutes)
- (7) Proposal of the British National Committee with regard to the interest of the chemical industry
- (8) Adhering Bodies
  - (a) Approval of new Adhering Bodies, if any
  - (b) Approval of the change of category of certain Adhering Bodies
- (9) Approval of the preliminary budget for 1962 and 1963
- (10) Limitation of the number of titular members in Divisions and Commissions
- (11) Ratification by the Bureau of the decisions taken by the Executive Committee
- (12) Ratification by the Council of the decisions taken by the Bureau since the XXth Conference
- (13) Adoption of the Section Presidents' Reports previously submitted to the Bureau and the Council in writing
- (14) Minutes of the Section Presidents' meetings—London, 1960-1961
- (15) Final decision regarding the new atomic weights scale
- (16) Report by the Ad Hoc Committee appointed to describe the functions of the officers of the Union, of Sections, Divisions and Commissions (Prof. P. Verkade, Chairman)
- (17) Problems regarding publications and report of the Editorial Board
- (18) Recommendations concerning the fundamental units of mechanics—MKSA—CGS system
- (19) Proposal of tentative nomenclature rules (Steroids, Abbreviations, etc.)
- (20) Copyright and translation
- (21) Rules regarding the election and term of office of the Union's officials and of the members of Commissions
- (22) Problems regarding the Applied Chemistry Section
- (23) Chemical Engineering
- (24) Possible co-operation with WHO—"generic names"
- (25) Possible co-operation with ISO
- (26) Report of the Section Presidents on the results of the Conference
- (27) Report of the Finance Committee
- (28) Election of three Bureau members
  - Approval of the elections made by the Sections
- (29) Meetings scheduled for 1962 and 1963
- (30) Date and place of the XXIIInd Conference and the XIXth Congress
- (31) Programme and subjects of future Congresses (see resolution by the Section Presidents of 9th April, 1958)
- (32) Affiliation of the Congress of Catalysis, the World Petroleum Congress, etc.
- (33) Any other business

## PROGRAMME FOR THE XX1st CONFERENCE

All meetings of the Conference will be held in the premises of the Social Centre, University of Montreal.

Executive Committee	Monday, 31, all day Tuesday, 1, all day Saturday, 5, after the Bureau meeting
Bureau	Wednesday, 2, 9.00–13.00 Saturday, 5, 16.00–18.00
Council	Wednesday, 2, 15.00 Saturday, 5, 9.00 Tuesday, 1, 17.00
Meeting of Section Presidents and Secretaries with the Secretary General	
Meeting of all Secretaries with the Secretary General	Sunday, 6, 1 h. $\frac{1}{2}$ before the opening of the Congress
Meeting of all Secretaries of the Member Countries with the Secretary General	Monday, 7; one meeting before the first Bureau meeting
Editorial Board	Thursday, 3, 10.00 Friday, 4, 10.00 Sunday, 6, time not yet fixed

### *Physical Chemistry Section*

Section Committee	Thursday, 3, 9.00–11.00
Meeting of the whole Section	Thursday, 3, 11.00–12.00
Commission on Physico-Chemical Symbols and Terminology	Wednesday, 2, 9.00–12.00 14.00–15.00 Thursday, 3, 14.00–19.00 Friday, 4, 9.00–12.00
Commission on Chemical Thermodynamics	Wednesday, 2, 14.00–15.00 Friday, 4, 9.00–12.00 / 14.00–17.00 Wednesday, 2, 15.00–17.00 Thursday, 3, 14.00–17.00 Wednesday, 2, 15.00–17.00 Friday, 4, 9.00–12.00
Subcommission on Experimental Thermochemistry	Wednesday, 2, 9.00–12.00
Subcommission on Experimental Thermodynamics	Friday, 4, 9.00–12.00 / 14.00–18.00
Commission on Electrochemistry (black-board, facilities for diascopic and episcopic projection, 20 seats)	Wednesday, 2, 9.00–12.00 Friday, 4, 9.00–12.00 / 14.00–18.00
Commission on Macromolecules (administrative facilities—typing facility for the minutes of the meetings—20 copies of 3 foolscap pages—/20 seats)	Friday, 28, 17.00 Monday, 31, 17.00
Commission on Physico-Chemical Data and Standards	Thursday, 3, 14.00 Friday, 4, 9.30
Commission on Molecular Structure and Spectroscopy	Thursday, 3, 14.00–19.00 Friday, 4, 14.00–19.00 date not yet fixed
Joint meeting of the Commission on Electrochemistry and the Commission on Physico-Chemical Symbols and Terminology	
Joint meeting of the Commission on Electrochemistry and the Commission	date not yet fixed



on Electrochemical Data (Analytical  
Section)  
Joint Commission on Applied Radio-  
activity  
CITCE

no meeting

7-10 August, 1961

### *Inorganic Chemistry Section*

Section Committee  
Commission on Atomic Weights  
(10 seats)  
Commission on Nomenclature  
Commission on High Temperatures and  
Refractories  
Subcommission on Gases  
Subcommission on Condensed States  
Commission on Geochemistry

Thursday, 3, 9.00  
Wednesday, 2, 14.00  
Thursday, 3, 10.00  
no meeting  
Friday, 11, 10.00-12.00  
  
Thursday, 10, 15.00-17.00  
Thursday, 10, 10.00-12.00  
no meeting

### *Organic Chemistry Section*

Section Committee  
Commission on Nomenclature  
  
Commission on Codification, Ciphering  
and Punched Card Techniques

Thursday, 3, 9.00  
at Columbus / Ohio  
Friday, 21 July  
Saturday, 22 July  
at Columbus / Ohio  
Friday, 21 July  
Saturday, 22 July

### *Biological Chemistry Section*

Officers of the Biological Chemistry  
Section  
Commission on Nomenclature  
Commission on Protein Standards  
Commission on Clinical Chemistry

Thursday, 3, 9.00  
Friday, 4, 10.00  
will not meet in Montreal  
will not meet  
will not meet

### *Analytical Chemistry Section*

Section Committee  
(meetings on 3rd, 15 persons;  
meeting on 4th, 50 persons)  
Commission on Analytical Reactions  
(15 persons)  
  
Commission on Microchemical Tech-  
niques (12 persons)  
Commission on Nomenclature  
(12 persons)  
  
Commission on Optical Data  
(15 persons)  
  
Commission on Electrochemical Data  
(15 persons)  
Commission on Equilibrium Data  
(15 persons)

Thursday, 3, 9.00-12.00 /  
14.00-17.00  
Friday, 4, 14.00-17.00  
Wednesday, 2, 9.00-12.00 /  
14.00-17.00  
Friday, 4, 9.00-12.00  
Thursday, 3, 14.00-17.00  
Friday, 4, 9.00-12.00  
Wednesday, 2, 14.00-17.00  
Thursday, 3, 9.00-12.00  
Friday, 4, 9.00-12.00  
Wednesday, 2, 14.00-17.00  
Friday, 4, 9.00-12.00  
Saturday, 5, 9.00-12.00  
Saturday, 5, 9.00-12.00 /  
14.00-17.00  
Thursday, 3, 9.00-12.00  
Friday, 4, 9.00-12.00

### *Applied Chemistry Section*

Section Committee

Thursday, 3, 9.00  
Friday, 4, 9.00

Food Division	will not meet in Montreal
Water, Sewage and Industrial Wastes Division	will not meet in Montreal
Pulp, Paper and Board Division	Thursday, 3, 14.30
Plastics and High Polymers Division	Thursday, 3, 14.30
Pesticides Division	Thursday, 3, 14.30
Organic Coatings Division	will meet in Copenhagen
Toxicology and Industrial Hygiene Division	Thursday, 3, 15.00-18.00
Fermentation Division	Friday, 4, 15.00-18.00
Oils and Fats Division	no meeting
Food Additives	no meeting
	Thursday, 3, 15.00-18.00
	Friday, 4, 15.00-18.00

### **Programme du XVIII<sup>e</sup> Congrès de Chimie pure et appliquée**

Pour le Congrès, veuillez vous référer au programme qui vous a été donné dans le Bulletin d'Information N° 12 (pages 25-30), auquel il faut encore ajouter les quelques conférences suivantes:

#### *Conférences de Section*

##### *Chimie physique*

#### *Section A 1: Structure et réactivité des petites espèces moléculaires*

Dr G. HERZBERG, Ottawa, Canada:

«Spectres et structures des radicaux libres»

#### *Section A 3: Propriétés chimiques et thermodynamiques aux températures élevées. Etats gazeux*

Dr I. FELS, Sheffield, Angleterre:

«Processus d'ionisation dans les gaz et leur application aux systèmes de conversion de l'énergie»

Prof. N. MANSON, Université de Poitiers, France:

«Possibilité de vérification des propriétés thermodynamiques au moyen des caractéristiques de détonation»

#### *Section A 4: Chimie nucléaire*

Dr J. M. ALEXANDER, Berkeley, Cal., USA:

«Réactions nucléaires des ions lourds»

Prof. J. M. MILLER, New York, USA:

«Réactions nucléaires d'énergie moyenne»

##### *Chimie appliquée*

#### *Section B 1: Structure et activité catalytique des surfaces de métaux*

Prof. Dr J. HORIUTI, Sapporo, Japon:

«Homogénéité et hétérogénéité de la surface des catalyseurs métalliques»

#### *Section B 2: Processus métallurgiques*

Prof. J. CHIPMAN, Cambridge, USA:

«Réactions des métaux de laitier dans les processus métallurgiques»

#### *Section B 3: Electrochimie*

Prof. J. O'M. BOCKRIS, Philadelphie, USA:

«La structure des sels en fusion»

Prof. R. PIONTELLI, Milan, Italie:

«L'électrochimie des monocristaux»

#### *Section B 5: Colloque sur la chimie du bois*

Dr J. MANN, Manchester, Angleterre:

«Techniques modernes pour évaluer la cristallinité de la cellulose»

## Chimie analytique

### Section C 1: Analyse des métaux et des minéraux

Dr G. W. C. MILNER, Harwell, Angleterre:

«Méthodes électrochimiques pour l'analyse des métaux et des minéraux»

### Section C 2: Chimie analytique des métaux non usuels

Dr R. PRIBIL, Prague, Tchécoslovaquie:

«Les nouvelles réactions analytiques de l'indium et du gallium»

### Section C 3: Analyse des résidus de pesticides

Dr R. D. O'BRIEN, Cornell, USA:

«Configuration moléculaire et activité des pesticides en rapport avec la dégradation et le métabolisme»

Dr W. E. WESTLAKE, Beltsville, Md., USA:

«Buts et progrès aux Etats-Unis des travaux régionaux concernant les résidus de pesticides»

## Chimie organique

*Sujet: Stéréochimie dynamique* (communications sur invitation seulement)

Prof. S. J. ANGYAL, New South Wales, Australie:

«Analyse conformationnelle quantitative dans la chimie des hydrates de carbone»

Prof. D. H. R. BARTON, Londres, Angleterre:

«Nouvelles réactions photochimiques et leur spécificité stéréochimique»

Prof. E. J. COREY, Cambridge, USA:

«Récents progrès en stéréochimie des structures organiques»

On pourra obtenir vers le 1<sup>er</sup> juin la première édition du Programme détaillé des communications, à condition d'en faire la demande au

Secrétaire du Comité central

XVIII<sup>e</sup> Congrès international de Chimie pure et appliquée

Conseil national des Recherches,

Ottawa, Canada

L'édition définitive du programme détaillé ainsi que les sommaires de toutes les communications devant être présentées au Congrès, seront remis aux délégués à leur arrivée à Montréal.

*Inscription et droits d'inscription.* — Pour s'inscrire définitivement au Congrès, les intéressés sont priés de remplir le formulaire C qu'ils trouveront dans la 3<sup>e</sup> circulaire et d'envoyer par avion à l'adresse mentionnée ci-dessus les trois premières copies auxquelles ils joindront leurs droits d'inscription. Les congressistes pourront garder la dernière copie du formulaire.

Les chèques ou les mandats doivent être faits au nom du XVIII<sup>e</sup> Congrès international de Chimie pure et appliquée et être en dollars canadiens ou américains.

	avant le 15 juin 1961	après le 15 juin 1961
Droits d'inscription:		
Membres . . . . .	\$20	\$25
Membres associés (épouses, époux, parents ou enfants ayant plus de 16 ans qui ne prennent pas part aux travaux scientifiques du Congrès) . . . . .	\$10 chacun	\$12,50
Etudiants . . . . .	\$ 5	\$ 5

*Logement.* — Les congressistes qui désireront loger à l'hôtel ou dans un pavillon universitaire devront remplir la formule B se trouvant dans la 3<sup>e</sup> circulaire et l'envoyer par avion au Secrétaire du Comité d'Organisation. Les demandes de réservation devront parvenir à Ottawa au plus tard le



30 juin 1961. Après cette date, il sera très difficile, sinon impossible, d'assurer le logement des congressistes à Montréal.

*Entrée au Canada.* — Les congressistes qui auront besoin d'un visa pour entrer au Canada devront faire leurs démarches sans tarder. Ceux en provenance de pays autres que les Etats-Unis devront avoir en leur possession un certificat de vaccination contre la variole. Ce certificat doit être du type «international» que recommande l'Organisation mondiale de la Santé. Les personnes qui ne se conforment pas à ce règlement sont susceptibles d'être mises en quarantaine, dans le port d'arrivée au Canada.

*Bureaux de renseignements.* — Le Quartier général du Congrès sera installé à l'Hôtel Queen-Elisabeth et le Centre d'inscription se trouvera dans cet hôtel, à la mezzanine. Le Centre d'inscription ouvrira le samedi 5 août 1961 à 9 h du matin et restera ouvert pendant toute la durée du Congrès.

*Excursions au Canada après le Congrès.* — Les délégués qui aimeraient participer à l'une de ces excursions, mais qui n'ont pas reçu la brochure spéciale pourront s'adresser à n'importe quelle agence Thos. Cook & Son ou au Secrétaire du Comité d'Organisation.

*Réunion annuelle nationale de l'American Chemical Society.* — A la demande du National Research Council à Ottawa, j'ai le plaisir de vous communiquer l'annonce ci-dessous :

«The 140th national meeting of the American Chemical Society and the 11th National Chemical Exposition will be held in Chicago during the week September 4 to 8, 1961. Over 1500 technical papers will be given at the ACS meeting, including many special symposia. The Exposition will include commercial exhibits, of chemicals, plant equipment, and apparatus, and many special educational exhibits.

Advance registration is *not* available for either the meeting or the Exposition. The complete programme of the technical meeting, including the titles of all papers, will be published in the 31 July issue of *Chemical and Engineering News*; a preliminary programme, including information on hotels, will be in the issue of 19 June.

These events follow the IUPAC meeting in Montreal, and persons attending may wish to extend their visit to Chicago.»

### **Programme for the XVIIIth Congress of Pure and Applied Chemistry**

For details of the Congress you are referred to the programme which was given in Information Bulletin No. 12 (pages 25-30), to which those mentioned on page 46-47 of this issue should be added.

Advance copies of the detailed programme of all invited and contributed papers will be available by 1 June and may be obtained on request from:  
Secretary, Central Committee,  
18th International Congress of Pure and Applied Chemistry,  
National Research Council,  
Ottawa, Canada

Copies of the final Programme and Abstracts of all papers to be presented at the Congress will be made available to all registrants on arrival in Montreal.

*Registration and Registration Fees.*—To make final application to attend the Congress, please complete the Registration Form enclosed with the Third Circular and airmail the first three copies, together with a remittance in the appropriate amount to the above address. The fourth copy of the form is for the registrant's personal records.

Cheques, money orders or other forms of remittances should be made payable to XVIIIth International Congress of Pure and Applied Chemistry and must be made in Canadian or USA dollars.

	<i>before</i>	<i>after</i>
Registration Fees:	15 June, 1961	15 June, 1961
Full Members . . . . .	\$20.00	\$25.00
Associate Members (wife, husband, other relative or children over 16 years of age, not taking part in scientific programme)	\$10.00 each	\$12.50
Students . . . . .	\$ 5.00	\$ 5.00

*Accommodation.*—To reserve accommodation in a hotel or university residence delegates should complete Form B enclosed with the circular and forward it, preferably by airmail, to the Secretary of the Central Committee, to reach there by not later than 30 June, 1961. Delegates whose applications are received after this date may find it impossible to obtain suitable accommodation in Montreal.

*Entry into Canada.*—Citizens from those countries for whom an entry visa is required by Canada are urged to take immediate steps to obtain their visa.

Delegates arriving in Canada from a country other than the USA must have in their possession a certificate of Vaccination against Smallpox which indicates that they have been vaccinated within three years immediately preceding their arrival or have had smallpox within this period. This certificate should be in the form known as the 'International' certificate, approved by the World Health Organization. Persons who do not comply will be subject to detention in quarantine at the port of arrival in Canada.

*Congress Offices.*—The headquarters of the Congress will be the Queen Elizabeth Hotel, Dorchester Street, Montreal, and the general registration area will be on the main mezzanine floor of this hotel.

The Registration Area will open at 9.00 a.m., Saturday, 5 August, 1961, and will remain open for the period of the Congress.

*Post-Congress Tours.*—Delegates who are interested in these tours but who do not have the concerned brochure, should contact their nearest representative of Thos. Cook & Son or Wagons-Lits/Cook, or the Secretary of the Central Committee.

## VI. CALENDRIER

1961

### *May*

- 29-31 44th Annual meeting of the Chemical Society of Canada (The Chemical Institute of Canada, 18 Rideau Street, Ottawa/Canada) Ottawa

### *May-June*

- 29- 2 Vth European Conference on Molecular Spectroscopy (Dr D. H. ZIJF, Nieuwe Achtergracht 123 Amsterdam-C/Holland) Amsterdam

### *June*

- 5- 7 International meeting on Water Research (Reading Committee of the meeting 1961, c/o Cebedeau, 2, rue A.-Stévat, Liège/Belgique) Liège
- 5-10 IX<sup>e</sup> Colloquium Spectroscopium Internationale (Groupement pour l'Avancement des Méthodes spectrographiques L.N.E., 1, rue Gaston-Boissier, Paris-15<sup>e</sup>/France) Lyon
- 9-17 13th Exhibition Congress of Chemical Engineering —Achema 61 (Dr. BRETSCHNEIDER, Dechema-Haus, Rheingauallee 25, Frankfurt/M./Germany) Frankfurt/M.
- 13-17 8th Annual Meeting of the Society of Nuclear Medicine (S.N. Turiel, 430 North Michigan Ave., Chicago 11, Ill./USA) Pittsburgh

### *July*

- 3- 7 3rd International Congress of Dietetics (British Dietetic Association, 251 Brompton Road, London S.W.3/UK) London
- 10-14 4th Congress of the International Diabetes Federation (Dr. B. RILLIER, Polyclinique de Médecine, 24, rue Micheli-du-Crest, Geneva/Switzerland) Geneva
- 18-21 International Symposium on Inorganic Polymers (Chemical Society, Burlington House, London W.1/UK) Nottingham
- 26-30 XI<sup>e</sup> réunion annuelle de la Société de Chimie physique - L'acide désoxyribonucléique (ADN), structure, synthèse et fonction - (Prof. G. EMSCHWILLER, 10, rue Vauquelin, Paris-5<sup>e</sup>/France) Col de Voza/Chamonix

### *July-August*

- 27- 1 International Symposium on Macromolecular Chemistry (Dr. H. L. WILLIAMS, Polymer Corporation Ltd., Sarnia/Ontario/Canada) Montreal

### *August*

- 2- 5 XXIst Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland) Montreal
- 6-12 XVIIIth International Congress of Pure and Applied Chemistry (Organizing Committee, XVIIIth International Congress of Pure and



Applied Chemistry, National Research Council,  
Ottawa/Canada)

- 7-11 Symposium on Chemical and Thermodynamic Properties at High Temperatures (R. F. WALKER, High Temperature Reactions Group, National Bureau of Standards, Washington 25 DC/USA) Montreal

*August*

5th International Congress on Pesticides Montreal  
Symposium on the Chemistry of Wood Montreal

- 10-16 4th General Assembly IUB—5th International Congress of Biochemistry (Prof. R. H. S. THOMPSON, Department of Chemical Pathology, Guy's Hospital Medical School, London S.E.1/UK) Moscow

- 13-18 Symposium on Microchemical Techniques (Dr. H. FRANCIS JR., Pennsalt Chemicals Co., P.O.Box 4388, Philadelphia 19, Pa/USA) University Park/Pa.

- 14-17 International Calorimetry Conference (Dr. J. E. KUNZLER, Bell Telephone Laboratories, Inc., Murray Hill, NJ/USA) Ottawa

- 22-55 1st International Congress on Pharmacology (Prof. B. UVNÄS, Pharmacology Institute, Karolinska Institutet, Stockholm 60/Sweden) Stockholm  
Symposium on Atmospheric Ozone and General Circulation cosponsored by the International Association of Meteorology and Atmospheric Physics and the World Meteorological Organization (Dr. H. U. DÜTSCH, Carl-Spitteler-Str. 20, Zurich 53/Switzerland) Arosa/  
Switzerland

*August–September*

- 27- 1 6th International Conference on Co-ordination Chemistry (Dr. S. KIRSCHNER, Department of Chemistry, Wayne State University, Detroit 2, Mich./USA) Detroit

*September*

- 4- 8 XXI<sup>e</sup> Congrès des Sciences pharmaceutiques (Prof. A. E. VITOLO, Piazza F. Carrara 10, Pise/Italie) Pise

- 4- 8 140th annual national Meeting of the American Chemical Society—11th National chemical Exposition (J. J. DOHENY, National Chemical Exposition, 86 East Randolph Street, Chicago 1, Ill./USA) Chicago

- 18-23 Hauptversammlung der Gesellschaft Deutscher Chemiker (Haus der Chemie, Karlstr. 21, Frankfurt/M./Germany) Aachen

*Undecided*

Conference on Radioisotopes in the Biological Sciences (International Atomic Energy Agency, Kärntnerring 11, Vienna 1/Austria) ?

Symposium on the Use of Radioisotopes in Micro-neurophysiology (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland) Cambridge ?

## November

- |   |                     |
|---|---------------------|
| Meeting of the Joint Commission on Applied Radioactivity (Dr. H. SELIGMAN, International Atomic Energy Agency, Kärntnerring 11, Vienna 1/Austria) | Basle or Strasbourg |
| Meeting of the International Abstracting Board (IAB) (Prof. G. BOUTRY, 292, rue St-Martin, Paris-3 <sup>e</sup> /France)                          | Paris               |

## 1962

### April

- |      |  |           |
|------|--|-----------|
| 3- 5 | Symposia on 'The Transition State'<br>'Some Aspects of the Chemistry of Natural Phenols'<br>'Reactivity and Structure in Inorganic Chemistry'<br>(The General Secretary, The Chemical Society, Burlington House, Piccadilly, London W.1) | Sheffield |
|------|--|-----------|

### May

- |   |  |       |
|---|--|-------|
| 2 | 14th International Symposium on Crop Protection<br>(Prof. J. VAN DEN BRANDE, Institut agronomique de l'Etat, 233, Coupure Gauche, Ghent/Belgium) | Ghent |
|---|--|-------|

### June

- |       |  |           |
|-------|--|-----------|
| 11-14 | 75th Anniversary of the Société chimique de Belgique. Symposium on Organic Chemistry (Comité national de Chimie, Palais des Académies, Brussels/Belgium) | Brussels  |
| 25-29 | International Conference on Co-ordination Chemistry (Prof. L. G. SILLÉN, Royal Institute of Technology, Kemistvägen 37, Stockholm 70/Sweden)             | Stockholm |

### July

- |       |  |        |
|-------|--|--------|
| 25-28 | Commemoration Symposium of the 50th Anniversary of the discovery by Prof. M. v. LAUE of the diffraction of X-rays by crystals (Prof. F. BOPP, Institut für theoretische Physik der Universität, Geschw.-Scholl-Platz 1, Munich 22/Germany) | Munich |
|-------|--|--------|

### August

- |       |   |        |
|-------|---|--------|
| 26-29 | Symposium on the Chemistry of Natural Products (Prof. F. SORM, Institute of Chemistry, Czechoslovakian Academy of Sciences, Na cvicisti 2, Prague 6/Czechoslovakia) | Prague |
|-------|---|--------|

### September

- |       |   |          |
|-------|---|----------|
| 10-15 | Symposium on molecular Structure and Spectroscopy (Prof. S. MIZUSHIMA, 698, 2-chome, Tamagawa-Denenchofu, Setagaya-ku, Tokyo/Japan)             | Tokyo    |
| 17-19 | International Symposium on Pharmaceutical Products (Prof. A. SOLDI, Società Italiana di Scienze farmaceutiche, Via Giorgio Jan 18, Milan/Italy) | Florence |

<i>July</i>		
20-25	3rd International Congress on Catalysis (Prof. J. H. DE BOER, Staatsmijnen in Limburg, Central Laboratorium, Geleen/Holland)	Amsterdam
<i>August</i>		
4-10	5th International Symposium on the Reactivity of Solids (Prof. G. M. SCHWAB, Sophienstr. 11, Munich/Germany)	Munich
<i>September</i>		
?	Symposium on Natural Products (Prof. MUNIO KOTAKE, Suita Kenkyujo, 646, Katayaka Suita, Osaka/Japan)	Japan

### British National Committee for Chemistry

*Symposia and Discussion Meetings open to chemists from abroad  
(without sponsorship of IUPAC)*

1961

<i>May</i>		
30-31	Annual Meeting of the Overseas Section of the Society of Chemical Industry (particulars from the Hon. Secretary, The Overseas Section, Society of Chemical Industry, 14 Belgrave Square, London, S.W.1. Registration fee £10. Early reservation advised)	Scheveningen, The Hague, Holland
<i>May/June</i>		
30- 3	Biennial Conference of the Oil and Colour Chemists' Association on 'Physics in Surface Coatings' (registration by 1 April 1961 to the General Secretary, Oil and Colour Chemists' Association, Wax Chandlers' Hall, Gresham Street, London E.C.2)	Torquay, Devon
<i>June/July</i>		
21- 1	Biennial International Exhibition and International Plastics Convention (Information from British Plastics, Dorset House, Stanford Street, London S.E.1)	London
<i>June</i>		
22	Colloquium on 'Quantitative Estimation of Amino Acids' (arranged by the Biochemical Society, Hon. Sec. Dr. W. J. WHELAN, Lister Institute of Preventive Medicine, Chelsea Bridge Road, London S.W.1)	St. Andrews University, Scotland
<i>July</i>		
13	Colloquium on 'The Teaching and Training of Biochemists' (arranged by the Biochemical Society, address as above)	Oxford University
<i>September</i>		
28-29	'Oxidation Processes in Chemical Manufacture', Symposium of London Section of the Society of	London

Chemical Industry, 14 Belgrave Square,  
 London S.W.1.  
 'Recent Developments in Processing Cereals',  
 Food Group of S.C.I.

<i>October</i> 5- 6	Colloquium on 'The Biochemistry and Biophysics of Phospholipids and Sulpholipids' (joint meeting of the British Biophysical Society and the Biochemical Society, address as above)	School of Pharmacy University of London
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*1962*

<i>April</i> 9-13	6th Congress of the International Society for Fat Research (information from the Society of Chemical Industry, 14 Belgrave Square, London S.W.1)	London
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<i>June</i> 26-28	Symposium on the 'Physics and Chemistry of High Pressures' (information from Society of Chemical Industry)	London
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<i>September</i> 18-21	1st International Congress of Food Science and Technology (information from Society of Chemical Industry)	London
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## VII. BIBLIOGRAPHY

1954

*International Symposium on Macromolecular Chemistry* (Consiglio nazionale delle Ricerche)—Milano/Torino—26 September–2 October—Outside Italy published by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Silicon, Sulphur, Phosphates*, Colloquium of the Section for Inorganic Chemistry—Münster, 2–6 September—Published by Verlag Chemie GmbH, Pappelallee 3, Weinheim/Bergstrasse (Germany)

1955

*Comptes Rendus of the 7th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Lindau—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*XIVth International Congress of Pure and Applied Chemistry*, Zurich, 21–27 July—Main and Section Lectures—*Experientia Supplementum II*—Information may be received from Birkhäuser-Verlag, Elisabethenstrasse 19, Basle

*Reprints of the Comptes Rendus of the XVIIIth Conference*, Zurich—Copies may be bought from the Secretary General Dr. R. MORF, c/o F. Hoffmann-La Roche & Co., Grenzacherstrasse 124, Basle 2

Booklet 2 Organic Chemistry Section Organic Nomenclature

Booklet 3 Biological Chemistry Section Nomenclature of Steroids

*Summaries of Papers*, held during the XIVth International Congress of Pure and Applied Chemistry in Zurich—Information may be obtained from Dr. R. MORF, c/o F. Hoffmann-La Roche & Co., Grenzacherstrasse 124, Basle 2

1956

*Colloque sur le Dosage des Poussières silicieuses dans les Atmosphères industrielles*, Lisbon—By the Toxicology and Industrial Hygiene Division

*Comptes Rendus of the 8th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Madrid—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

*Congress Handbook of the XVth International Congress of Pure and Applied Chemistry*, Lisbon—Copies may be obtained from Mr. A. RALHA, Instituto Superior Técnico, Lisbon

*Experimental Thermochemistry*, Published under the Direction of Prof. F. D. ROSSINI, President of the Commission on Chemical Thermodynamics, by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*XVth International Congress of Pure and Applied Chemistry*, Lisbon—*Experientia Supplementum V*—Information may be received from Birkhäuser-Verlag, Elisabethenstrasse 19, Basle

*Symposium on Macromolecules*, Rehovot, 3–6 April—Published in the *Journal of Polymer Science* by Interscience Publishers, Inc., 250 Fifth Avenue, New York 1

*Tables de Constantes sélectionnées*, Pouvoir rotatoire naturel I. Stéroïdes—Information may be obtained from Mme S. ALLARD, 18, rue Pierre-Curie, Paris-5e

*Comptes Rendus of the XIXth Conference*, Paris—Printed by Berichthaus, Zurich—Copies may be bought from Dr. R. MORF, c/o Hoffmann La Roche & Co., Grenzacherstrasse 124, Basle 2

*Comptes Rendus of the 9th Meeting of the Comité international de Thermodynamique et de Cinétique électrochimiques CITCE*, Paris—Published by Butterworths Scientific Publications, Ltd., 4-5 Bell Yard, London W.C.2

*Definitive Rules for the Nomenclature of Organic Chemistry*, Section A: Hydrocarbons. Section B: Fundamental Heterocyclic Systems—English version—Information may be received from Butterworths Scientific Publications Ltd., 4-5 Bell Yard, London W.C.2

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*International Symposium on the Chemistry of Co-ordination Compounds*, Rome 15-21 September—To be obtained from: Consiglio Nazionale delle Ricerche, Piazzale delle Scienze 7, Roma—Outside Italy: Pergamon Press Ltd., 4 Fitzroy Square, London W.1—Pergamon Press Ltd., 122 East 55th Street, New York

*La Diffusion dans les Liquides et dans les Gels*, Published in the «Journal de Chimie Physique» (issues of November 1957, December 1957, February 1958, April 1958)—Information may be obtained from: Journal de Chimie Physique (service de M. CHATELET), 11, rue Pierre-Curie, Paris-5<sup>e</sup>

*Modern Electroanalytical Methods*, Proceedings of the International Symposium on Modern Electrochemical Methods of Analysis, Paris—Edited by Prof. G. CHARLOT and published by Elsevier Publishing Company, Spuisstraat 110-112, Amsterdam

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*Stability Constants of Metal-Ion Complexes with Solubility Products of Inorganic Substances*, Volume I—By MESSRS. J. BJERRUM, G. SCHWARZENBACH and L. G. SILLÉN—Published by the Chemical Society of London, Burlington House, Piccadilly, London W.1

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*Determination of Copper Content of Foodstuffs (Photometric Method)*, By Trace Elements in Food Subdivision—Published by Butterworths Scientific Publications Ltd., 4–5 Bell Yard, London W.C.2

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*Pure and Applied Chemistry*: the official Journal of the Union of Pure and Applied Chemistry. Published irregularly, 4 numbers per volume, price £6 (\$18.00) per volume. Vol. 1, No. 1 now published.

*Radioactivation Analysis*: the proceedings of the Radioactivation Analysis Symposium, Vienna, 1959. Reprinted from 'Pure and Applied Chemistry', Vol. 1, No. 1. Price 30/—.

IUPAC Publications are obtainable from BUTTERWORTHS, the official publishers to the Union at:

*Great Britain*: 4-5 Bell Yard, London W.C.2,

*USA*: 7235 Wisconsin Avenue, Washington 14, DC

or through the Secretary General in Basle.

Attention is also drawn to the arrangements made between the IUPAC Editorial Board and Butterworths whereby authors of papers or Commission reports which are printed in the Journal may obtain reprints at reduced rates. National organizations wishing to order larger numbers of reprints or separate issues may also obtain them at reduced charges.

## 1961

*XVIIIth International Congress of Pure and Applied Chemistry*, main and sectional lectures—Munich 1959—published jointly by Butterworths, London, and Verlag Chemie GmbH, Weinheim/Bergstrasse.

Vol. I—Inorganic Chemistry Price DM 38.—

Vol. II—Biochemistry and Applied Chemistry Price DM 45.—



## VIII. NOTE DU RÉDACTEUR

Le Secrétaire général est heureux de présenter ici, au nom de l'Union internationale de Chimie pure et appliquée, ses meilleurs vœux de bonheur et santé à M. l'Académicien B. A. KASANSKI, membre du Comité exécutif de l'IUPAC, ainsi qu'à M. le Prof. P. E. VERKADE, membre du Bureau de l'IUPAC, à l'occasion de leur 70<sup>e</sup> anniversaire.

## VIII. EDITORIAL NOTE

On behalf of the International Union of Pure and Applied Chemistry, the Secretary General wishes to extend congratulations and sincere best wishes to Academician B. A. KASANSKI, member of the Executive Committee, and to Prof. P. E. VERKADE, Member of the IUPAC Bureau, for their 70th Birthday.

## CHARTER FLIGHT MONTREAL

A la dernière minute, l'Agence Cook de Paris nous communique qu'il y aura définitivement un Charter Flight pour Montréal, à des conditions très favorables, le 1<sup>er</sup> août. Prière de se renseigner auprès de l'Agence Cook la plus proche de votre domicile.

At the last moment, Thos. Cook & Son, Paris, informed us that there will definitely be a charter flight to Montreal on the 1 August, with very favourable conditions. Please communicate with the branch of Thos. Cook & Son nearest to your home.

## CONFÉRENCE ET CONGRÈS DE MONTRÉAL - 1961

## Arrangements de voyage

3<sup>e</sup> circulaire

J'ai le plaisir de vous informer que l'étude du résultat du sondage entrepris auprès des membres de l'IUPAC nous a permis de dégager un plan de transport, prévoyant l'affrètement d'avions spéciaux pour l'acheminement des délégués européens à Montréal.

En conséquence, l'Agence Cook a décidé de retenir, parmi les offres enregistrées, celles de la Compagnie AIR FRANCE:

*Type d'appareil:* «Boeing 707» (Jet Intercontinental). Equipement mixte, sièges «Economique» et «Première classe». Service à bord «Première classe» pour tous les passagers, pour les repas et boissons

*Dates de circulation:*

1<sup>er</sup> août - *Paris/Montréal* (arrivée vers 15 h, heure locale). Pré-acheminement des délégués britanniques de *Londres à Paris* par vol régulier, en correspondance immédiate

14 août - *Montréal/Londres/Paris* (arrivée dans les premières heures de la matinée du 15 août)

Je me permets d'attirer votre attention sur le fait qu'il s'agit d'appareils assurant normalement le transport sur les lignes transatlantiques et qui offrent par conséquent toutes garanties de sécurité et de confort.

L'accès des avions spéciaux est réservé exclusivement aux membres de l'IUPAC et à leur famille (épouses et enfants).

Les quotes-parts par personne ne pourront être fixées que lorsque nous connaîtrons le *nombre définitif* des passagers qui utiliseront ces appareils. Toutefois, en se basant sur les inscriptions provisoires, les prix de transport peuvent être évalués *approximativement* à:

	Aller et retour	Parcours simple
<i>Paris/Londres-Montréal</i>	US\$	US\$
Classe économique . . . . .	300.—	165.—
Première classe . . . . .	400.—	240.—

Ces montants tiennent compte des frais de transport pour le pré-acheminement des délégués britanniques de *Londres à Paris* le 1<sup>er</sup> août.

*Note importante:* Priorité sera donnée aux délégués qui effectueront leur voyage transatlantique sur les vols du 1<sup>er</sup> et du 14 août. Les inscriptions seront satisfaites par ordre de réception, et selon les disponibilités.

En outre, il a été décidé de prévoir la mise en circulation d'un avion spécial au départ de *Montréal* le 21 août, en faveur des participants aux post-congress tours techniques. Le type de l'appareil (avion à hélices ou à réaction) dépendra essentiellement du nombre des inscriptions qui seront enregistrées pour cette date.

Les conditions de transport par avions spéciaux étant inversement proportionnelles au nombre des passagers, nous espérons que de nombreux congressistes européens décideront de se joindre à ceux provisoirement enregistrés.

La réalisation pratique de ce plan de transport a été confiée à l'organisation mondiale Wagons-Lits/Cook et Thos. Cook & Son, agence de voyages officielle pour les manifestations de Montréal.

Afin de ne pas engager financièrement la responsabilité de l'Union internationale de Chimie pure et appliquée, nous vous prions instamment

de vouloir bien, pour la concrétisation des inscriptions, suivre scrupuleusement les instructions suivantes:

- 1° Retourner à l'Agence Wagons-Lits/Cook et Thos. Cook & Son la plus proche de votre domicile, *avant le 15 mai 1961* dernier délai, dûment complété, le bulletin d'inscription ci-joint;
- 2° Verser auprès de cette agence un dépôt de l'équivalent de US\$200.— pour les vols aller et retour, et US\$100.— pour les parcours simples, par personne.

Il est bien entendu que le versement de ce dépôt n'engage en aucune manière ni l'IUPAC ni les Agences Wagons-Lits/Cook et Thos. Cook & Son, et ce dernier serait remboursé intégralement dans le cas où, pour une raison quelconque, la réalisation des affrètements s'avérerait impossible, sans que le congressiste puisse prétendre à une indemnité pour dommages et intérêts. Il va de soi que ce dépôt pourrait être utilisé pour le règlement des frais de passage sur les lignes régulières.

Tous renseignements concernant les horaires et les quote-parts définitives vous seront fournis directement par les soins des Agences Wagons-Lits/Cook et Thos. Cook & Son.

Nous profitons de l'occasion pour vous rappeler que les réservations de chambres à Montréal doivent être effectuées dès que possible, au plus tard avant le 30 juin 1961, auprès du Secrétariat d'Ottawa, en utilisant le formulaire «B» de la Seconde Circulaire.

### **Union internationale de Chimie pure et appliquée Congrès et Conférence de Montréal – 1961**

A retourner, dûment complété, *avant le 15 mai 1961*, dernier délai, à l'Agence Wagons-Lits/Cook ou Thos. Cook & Son la plus proche de votre domicile.

Nom Prénoms

Adresse complète

Téléphone

Accompagné de (noms et prénoms)

Veuillez trouver ci-joint un chèque d'un montant de

(équivalent à US\$200.—/100.— par personne\*, concrétisant mon inscription sur les vols spéciaux ci-après:

	Nombre de personnes	Classe
<i>Aller:</i> 1 <sup>er</sup> août – Aéroport d'embarquement <i>Paris/Londres*</i>		Eco/1 <sup>re</sup> *
<i>Retour:</i> 14 août – Aéroport de départ <i>Londres/Paris*</i>		Eco/1 <sup>re</sup> *
<i>Retour:</i> 21 août – Aéroport de débarquement <i>Londres/Paris*</i>		Eco/1 <sup>re</sup> *
– Ligne régulière au départ de pour		Eco/1 <sup>re</sup> *

\* Rayer la mention inutile

Lieu et date:

Signature:

## CONFERENCE AND CONGRESS OF MONTREAL—1961|

### Travel Arrangements

#### *3rd circular*

I have pleasure in informing you that a study of the results of the enquiry amongst members of IUPAC has permitted us to work out a plan of transport, which anticipates chartering special aircraft to take the European delegates to Montreal.

Therefore, from among the offers received, Thos. Cook & Son have decided to accept that of Air France:

*Machine:* 'BOEING 707' (Intercontinental Jet). Mixed accommodation, Economy and First Classes. First class service on board for all passengers, for meals and drinks

#### *Dates of trips:*

*1st August:* Paris—Montreal (arrive approximately 15.00 local time). Pre-transport of British delegates from London to Paris by regular flight—direct connection

*14 August:* Montreal—London/Paris (arrive early morning of 15 August).

I should like to draw your attention to the fact that the machines will be those normally in service on transatlantic lines, offering all guarantees of safety and comfort.

Use of these special planes is reserved exclusively for members of IUPAC and their families (wives and children).

The exact share of the cost per person cannot be fixed until we know the *final number* of passengers who will be using the machines. However, using the provisional answers as a basis, the fare can be evaluated *approximately* as follows:

	Return journey	Single journey
<i>Paris (London)—Montreal</i>	US\$	US\$
Economy class . . . . .	300.—	165.—
First class . . . . .	400.—	240.—

These figures include transport of the British delegates from London to Paris on 1 August.

*Important Note:* Priority will be given to those delegates who intend to travel in the planes on 1 and 14 August. Requests will be dealt with in order of receipt and according to availability.

Further, it has been decided to propose the use of a special plane leaving Montreal on 21 August for the convenience of those participating in the post-congress tours. The type of machine (turbine or jet) will depend on the number of applications received for travel on this date.

The fares will be inversely proportional to the number of passengers. We hope, therefore, that numerous European delegates will decide to join those who have already applied provisionally.

The organization of this plan of transport has been entrusted to Wagons-Lits/Cook and Thos. Cook & Son, official travel agents for the meetings in Montreal.

In order to avoid entangling the Union in financial responsibilities, we would ask you to follow exactly the instructions given below, in confirming your applications:



- (1) Return the accompanying form, duly completed, before the *15 May, 1961*, at the latest, to the agency Wagons-Lits/Cook and Thos. Cook & Son, nearest to your home;
- (2) Pay to this agency a deposit of the equivalent of US\$200 for the return flight and \$100 for the single journey, per person.

It should be understood that the payment of this deposit does not involve either IUPAC or the agents Wagons-Lits/Cook and Thos. Cook & Son in any obligation whatsoever and that the deposit will be reimbursed completely in the event of cancellation of this charter flight for any reason whatsoever, without the participant having any right to damages or interest. Obviously, this deposit could be used towards the fare by a regular line.

You will receive all information concerning time-tables and final share of payments from the agents Wagons-Lits/Cook and Thos. Cook & Son, direct.

I should like to take this opportunity of reminding you that reservations of rooms in Montreal should be made as soon as possible, before 30 June, 1961, at the latest, through the secretariat in Ottawa, using form 'B' from the second circular.

**International Union of Pure and Applied Chemistry**  
**Congress and Conference of Montreal—1961**

To be returned, duly completed, *before 15 May, 1961*, at the latest, to the agents Wagons-Lits/Cook or Thos. Cook & Son nearest to your home.

Name Christian names

Full address

Telephone

Accompanied by (full names)

Please find enclosed herewith a cheque for  
 (equivalent to US\$200.—/100.— per person\*, guaranteeing my application  
 on the following special flight:

		Number of persons	Class
<i>Outward journey:</i>	1 August	Airport of embarkation <i>Paris/London*</i> . . . . .	Eco/1st*
<i>Return journey:</i>	14 August	Airport of disembarkation <i>London/Paris*</i> . . . . .	Eco/1st*
	21 August	Airport of disembarkation <i>London/Paris*</i> . . . . .	Eco/1st*
		regular flight from to	Eco/1st*

\* Delete where inapplicable

Place and date:

Signature

## TENTATIVE RULES

### ABBREVIATIONS AND SYMBOLS FOR CHEMICAL NAMES OF SPECIAL INTEREST IN BIOLOGICAL CHEMISTRY

#### Explanatory Memorandum

The Nomenclature Commission of the Section for Biological Chemistry decided in 1958 that an attempt should be made to standardize the abbreviations and symbols used for chemical names of special interest in biological chemistry. A Sub-Committee, consisting of Professor L. HELLERMAN, Dr. W. KLYNE (Chairman) and Professor E. C. SLATER, was set up early in 1959 to deal with this problem.

The original draft proposals were based on the notes given at the beginning of each number of the *Journal of Biological Chemistry* (1958 *et seq.*) and of the *Suggestions to Authors* of the *Biochemical Journal* (66, 1; 1957). These drafts were circulated to members of the Nomenclature Commission, editors of chemical and biochemical journals, and interested specialists in many fields.

The problems were discussed fully at the meeting of the Nomenclature Commission for Biological Chemistry in Munich in September, 1959—and also in joint sessions with the Organic Nomenclature Commission and the Enzyme Commission of the International Union of Biochemistry (IUB). A third draft, incorporating the results of the Munich discussions, was widely circulated in December, 1959, and many useful comments on this were received.

A fourth draft, representing the "Highest Common Factor" of all these comments and of many personal discussions, was prepared in August, 1960, and circulated to the Biological Chemistry Nomenclature Commission and to editors of some principal journals.

The meeting of editors of biochemical journals called together by the President of IUB in Cambridge in September, 1960, invited Dr. W. KLYNE to attend part of their meeting. He explained the history and purpose of the memorandum on abbreviations; he emphasized that this work lies on the borderland between the provinces of the two Unions, and that agreement of both Unions in principle was therefore very desirable.

After discussion, the Secretary General of IUB, Prof. R. H. S. THOMPSON, proposed the following statement, which was unanimously agreed. 'The contents of this memorandum (i.e., the 4th Draft) were approved both by the Bureau of IUB and by the meeting of Editors of biochemical journals called together by the President of IUB under the Chairmanship of Dr. J. T. EDSALL, at a meeting held in Cambridge on 9th September, 1960.'

It has been impossible to meet all the comments and criticisms which colleagues have kindly offered on the various Drafts—since so many of the comments are mutually contradictory. However, these tentative proposals represent an honest attempt to give fair weight to all the diverse opinions which have been expressed.

Comments on these tentative proposals should be sent to the Chairman of the Nomenclature Commission of the Section for Biological Chemistry, Prof. W. KLYNE, Westfield College, Hampstead, London, N.W.3.—or to any member of this Commission.

## TENTATIVE RULES

### 1. Introduction

1.1 It is sometimes convenient to use abbreviations or symbols for the names of chemical substances, particularly in equations, tables or figures, which would otherwise require the repeated use of unwieldy terms. The limited use of abbreviations and symbols of specified meaning is therefore accepted. However, clarity and unambiguity are more important than brevity.

1.2 Some chemists deprecate the use of *any* abbreviations or symbols for compounds. However, in the present state of biochemistry, increasing knowledge of the structure of large molecules such as proteins, polysaccharides and polynucleotides makes it imperative to have some 'shorthand' notation in which symbols are allotted to the monomeric units (monosaccharides, amino acids and nucleosides) which are Nature's building-bricks in these complex structures. Opponents of abbreviations should consider how unwieldy the formula of insulin would appear if the 'three-letter' symbols for amino acids had not been permitted.

1.3 Titles and summaries of papers should be generally free from abbreviations. In the body of the paper, abbreviations and symbols may be used in the text sparingly, and only if advantage to the reader results. Chemical equations, which traditionally consist of symbols, may use a shorthand expression for a term which appears in full in the neighbouring text.

1.4 If, in exceptional circumstances, symbols or abbreviations are used in a summary, they must be defined in the summary, as well as in the body of the paper.

1.5 It is hoped that editors will adopt in their journals as many of the following rules as possible in the light of individual circumstances.

1.6 Even if some journals permit the use of standard abbreviations without definition, non-standard abbreviations should *always* be defined in each paper.

1.7 Non-standard abbreviations and symbols should not conflict with known ones, or with the general principles proposed in these rules (see also Section 8).

1.8 The symbols and abbreviations discussed here fall into two distinct classes.

(a) *Symbols* for monomeric units in macromolecules; these symbols are used to make up abbreviated structural formulae (sometimes called 'shorthand' formulae); e.g., Gly-Val-Thr for the tripeptide glycylvalylthreonine. These are generally used by structural organic chemists, and can be made fairly systematic.

(b) *Abbreviations* for semi-systematic or trivial names—e.g., ATP for adenosine triphosphate; FAD for flavin—adenine dinucleotide.

The abbreviations of the second kind are generally formed of three or four capital letters. They are chiefly required by biochemists and are generally introduced as required; the need is for brevity rather than for system. It is the indiscriminate coining of such abbreviations that has aroused objections to the use of abbreviations in general.

#### *Symbols for Natural Macromolecules*

1.9 There are three main series of symbols for monomeric units, viz. those for amino acids, monosaccharides and mononucleosides, of which the amino acid series is the oldest. An attempt has been made here to devise a standard treatment for all the three great groups of macromolecules which are built



up from these units. The standardization of treatment will involve certain unimportant changes in the (as-yet partly developed) systems for individual groups. This standardization is desirable for two reasons.

(a) The work of authors, editors and readers will be made simpler if the same principles apply to polypeptides, polysaccharides and polynucleotides.

(b) Standard treatment will be essential for dealing with 'hybrid' compounds, built up of units of different kinds, e.g. the nucleotide-peptides from *Staphylococcus aureus* (PARK, J. T., *J. biol. Chem.*, 194, 877, 885, 897; 1952. ITO, E., and STROMINGER, J. L., *J. biol. Chem.*, 235, PC5; 1960). Few of these are known at present, but it is likely that many more will come to light as biochemistry develops.

1.10 It is much more difficult to be completely systematic in the planning of abbreviations and 'shorthand' symbols for complex substances, than in the construction of organic chemical formulae and physical symbols. Experience shows that it is not only difficult, but in some cases undesirable, to be rigidly consistent with these complex symbols.

The following example will illustrate these facts. For most purposes it is convenient to use the symbol Gly-Val-Thr to represent the tripeptide glycylvalylthreonine, as solid or in solution, whatever its state of ionization. We know that at certain defined pH values, the tripeptide will exist (mainly) as cation, as anion or as dipolar ion, but it is usually unnecessary to make separate shorthand symbols to represent these different forms.

This deliberate lack of precision runs parallel with the convention by which biochemists talk about the 'citric acid cycle' or 'tricarboxylic acid cycle', in spite of the fact that the acids exist almost entirely as their anions at physiological pH.

In several cases it is thought desirable to recommend for the same substance two different forms of abbreviation or symbol, one or other of which is more convenient for specific purposes.

### *Alternative Abbreviations and Symbols*

1.11 For some important compounds it is in practice necessary to have *two* symbols or abbreviations. For example, most biological chemists will continue to speak of 'adenosine diphosphate', or more often to abbreviate it as 'ADP'. Organic chemists interested in the structure and synthesis of this and related compounds will wish to call this compound 'adenosine 5'-pyrophosphate', and to use a systematic symbol (Ado-5'-P-P). The abbreviation and the symbol must therefore coexist.

1.12 Abbreviations such as 'ADP', which are to the organic chemist *trivial*, will be used to form the systematic names of enzymes in the patterns proposed by the Enzyme Commission of the International Union of Biochemistry.

### *Language Differences*

1.13 It is desirable that where trivial abbreviations (such as ACTH) are necessary, they should be identical in all languages—as are chemical symbols (e.g. N standing for nitrogen, azote and Stickstoff). It would be unfortunate if the substance called in English 'ribonucleic acid', and abbreviated 'RNA', were to retain two separate abbreviations, ARN (acide ribonucléique) and RNS (Ribonukleinsäure) in French and German, to say nothing of other languages. It is suggested that the international abbreviations should be taken from that language, in which a given abbreviation first became common. Abbreviations introduced in future may conveniently be based on Greek or Latin forms.



1.14 Structural analogues of a given compound should not generally be abbreviated as if they were derivatives of that compound.

## 2. Polypeptides and Proteins

This system is based on the original proposals of BRAND, E., and EDSALL, J. T. (*Ann. Rev. Biochem.* 16, 224; 1947) as developed in the monograph of GREENSTEIN, J. P., and WINITZ, M., *The Chemistry of the Amino Acids*, 3 vols. Wiley, New York 1961.

2.1 The following symbols shall be used to denote the common amino acids and their residues as combined in polypeptides and proteins:

alanine	Ala	leucine	Leu
arginine	Arg	lysine	Lys
aspartic acid	Asp	methionine	Met
cystine (half)	CyS	ornithine	Orn
cysteine	CySH	phenylalanine	Phe
glutamic acid	Glu	proline	Pro
glycine	Gly	serine	Ser
histidine	His	threonine	Thr
hydroxylysine	Hylys or (OH)Lys*	tryptophan	Try
hydroxyproline	Hypro or (OH)Pro*	tyrosine	Tyr
isoleucine	iLeu or Ileu*	valine	Val

Modified amino acids such as asparagine and glutamine may be represented as Asp(NH<sub>2</sub>), Glu(NH<sub>2</sub>)

or Asp, Glu

NH<sub>2</sub> NH<sub>2</sub>

The modifying group is shown *either* in parentheses *or* below the amino acid symbol.

2.2 The abbreviations should *not* be used for the free amino acids in the *text* of papers, but only in tables, lists and figures.

2.3 Where the sequence of residues in a peptide or protein is known, the symbols for the residues shall be written in order and joined by short lines (dashes, hyphens). Where the sequence is *not* known, the group of symbols, separated by *commas*, shall be enclosed in parentheses.

In the formulation of linear polypeptides or proteins, the symbol written at the left-hand end of a known sequence is that of the amino acid carrying the free amino group, and the symbol written at the right-hand end is that of the residue of the amino acid carrying the free carboxyl group.

Example:

The condensed formula

Gly-Glu-Arg-Gly-Phe-(Phe, Tyr, Thr, Pro)-Lys-Ala

is that of a polypeptide in which the sequence of the first five amino acids has been established, the glycine at the left carrying the free amino group. The sequence of the next four amino acids is unknown, but the last two amino acids are in known order with alanine carrying the free carboxyl group.

\* Opinion is rather evenly divided between the alternative symbols in these cases.

If the direction of the link needs to be specified, this may be done with an arrow thus ( $\rightarrow$ ), the point of the arrow indicating the nitrogen of the peptide bond  $\dots\text{CO}\rightarrow\text{NH}\dots$

Example: Gly $\rightarrow$ Ala $\rightarrow$ Val

The symbol  $\rightarrow$  is desirable particularly for dealing with *cyclic* peptides.

Unless otherwise indicated, it is assumed that polyfunctional amino acids, such as glutamic acid, aspartic acid and lysine, are joined by normal  $\alpha$ -peptide bonds.

Abnormal links, e.g.  $\gamma$ -peptide bonds, may be indicated by methods such as the following:—



### Comment

The links between residues have been shown previously by peptide chemists as full points (periods, dots;  $\cdot$ ) and by carbohydrate chemists (generally) as short strokes (dashes, hyphens;  $-$ ). At times special symbols have been used ( $>$  or  $\rightarrow$ ) to show the direction of what is in all cases an unsymmetrical link (peptide or glycoside).

It is suggested that for the sake of consistency and ease of printing a short rule or dash ( $-$ ), which is what we normally use for a chemical bond, shall be the standard connecting symbol.

The simple usage, by which Gly-Gly-Gly stands for glycylglycylglycine, appears to involve the employment of the *same* three letters Gly for *three* different residues or radicals—(b), (c), (d) below. However, if the dashes or hyphens are considered as part of each symbol, we have four distinct forms, for the free amino acid and the three residues, viz:

- (a) Gly =  $\text{NH}_2\cdot\text{CH}_2\cdot\text{CO}_2\text{H}^*$  ; the free amino acid
- (b) Gly- =  $\text{NH}_2\cdot\text{CH}_2\cdot\text{CO}-$  ; the left hand unit
- (c) -Gly- =  $-\text{NH}\cdot\text{CH}_2\cdot\text{CO}-$  ; the middle unit
- (d) -Gly =  $-\text{NH}\cdot\text{CH}_2\cdot\text{CO}_2\text{H}$  ; the right hand unit

For peptides, a distinction may be made between the *peptide* itself, e.g., Gly-Glu (shown *without* dashes at the ends of the symbols) and the *sequence*, e.g. -Gly-Glu- (shown *with* dashes at the ends of the symbol).

2.4 Where it is necessary to indicate the configuration of the residues, the prefixes L- or D- shall be attached directly to the symbol of the amino acid.

Example: L-Leu-D-Phe-Gly

If no configurational prefix is given, it is to be assumed that all residues\*\* are L; this should be stated in each paper.

### Rare amino acids

2.5 It has been thought appropriate to restrict the list in para. 2.1 to the commoner amino acids. Symbols for the rarer amino acids and for diastereoisomers are under discussion by specialists in the field.

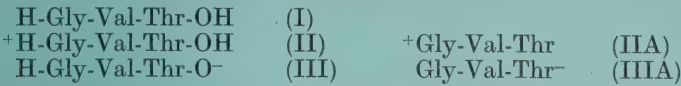
### State of ionization

2.6 As stated in para. 1.10 it is generally convenient to use the same abbreviated formula for a polypeptide, no matter what its state of ionization.

\* or corresponding ionized forms

\*\* Except for glycine, which is inactive

In some circumstances, however, an author will wish to show that a peptide is acting as a cation or anion; he may then use one of two procedures. (a) According to convention of GREENSTEIN and WINITZ (*The Chemistry of the Amino Acids*) the amino-terminal and carboxyl-terminal ends of the peptide are marked with H and OH respectively (I); these may be modified to show the appropriate state of ionization (II or III)



(b) Alternatively + and — signs may be added to the symbols without terminal H or OH (IIA or IIIA).

### Derivatives

2.7 Symbols for the functional groups of derivatives are under discussion by specialists in the field.

### Comment

Several systems of single-letter abbreviations for amino acids are under discussion by specialists in the protein field.

## 3. Carbohydrates

A system of three-letter symbols for monosaccharide units, similar to that already in use for peptides, was introduced by the Carbohydrate Nomenclature Committees of the Chemical Society and the American Chemical Society (cf. *J. Chem. Soc.* 5121; 1952; *Chem. Eng. News*, 31, 1776; 1953). The following rules are based on this system.

3.1 The following symbols shall be used to indicate monosaccharide units in oligosaccharides and polysaccharides.

Glucose	Glc*	Fructose	Fru
Galactose	Gal	Ribose	Rib
Mannose	Man		

Other monosaccharides shall be represented similarly by the first three letters of their names, unless this would lead to confusion with an existing symbol (e.g. Gly and Thr in the amino acid series).

3.2 Pyranose and furanose forms shall be designated where necessary by the suffixes *p* and *f*.

3.3 Configurational symbols D and L (small Roman capital letters) shall be shown where necessary as prefixes.

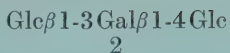
- Examples (i) a D-glucopyranose unit, D-Glep  
(ii) a D-fructofuranose unit, D-Fruf

3.4 Symbols thus formed shall be joined by short rules to indicate the links between units. The position and nature of the links shall be shown by numerals and the anomeric symbols  $\alpha$  and  $\beta$ .

Examples	Maltose,	Glc $\alpha$ 1-4Glc
	Lactose,	Gal $\beta$ 1-4Glc
	Stachyose,	Gal $\alpha$ 1-6Gal $\alpha$ 1-6Gal $\alpha$ 1-2 $\beta$ Fruf

\* Instead of G, used previously

A branched-chain tetrasaccharide



1  $\alpha$ Fuc

Arrows may be used to indicate the direction of the glycoside link, the arrow pointing away from the hemiacetal carbon of the link; e.g., lactose may be represented as  $\text{Galp}\beta 1\rightarrow 4\text{Glc}$ .

3.5 2-Deoxy sugars shall be designated by the symbol for their parent sugar with the prefix 'de'. Other deoxy-sugars may be designated similarly with a positional numeral.

Examples: 2-Deoxyribose, deRib ; 3-Deoxyglucose, 3-deGlc.

*Comment.* It may sometimes be necessary to enclose such a symbol in parentheses to avoid confusion between the numeral indicating the "deoxy-position", and numerals indicating the position of linkages.

3.6 Derived monosaccharide units—such as glyconic acids, glucuronic acids, 2-amino 2-deoxy saccharides and their *N*-acetyl derivatives—may be designated by reasonable modified symbols, defined in each paper. Examples of symbols which have been used or suggested are as follow (all in the glucose, Glc, series):

Gluconic acid	GlcA :GlcCO <sub>2</sub> H
Glucuronic acid	GlcUA :GlcUA
Glucosamine	GlcN :GlcNH <sub>2</sub>
<i>N</i> -Acetylglucosamine	GlcNAc:GlcNHAc

Further consideration by specialists in the field is necessary.

3.7 Symbols should not be used for the monosaccharides themselves, except in tables, lists and figures.

#### 4. Phosphorylated Compounds: General

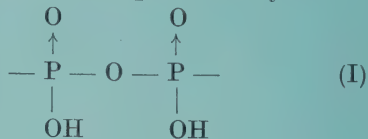
4.1 Phosphorylated compounds may be designated by the name\* (or abbreviation) of the parent compound with a capital italic *P* as a prefix or suffix.

*P* is used as prefix where it symbolizes 'phospho-' at the beginning of a name. *P* is used as a suffix where it symbolizes 'phosphoric acid' or 'phosphate' at the end of a name.

For compounds containing more than one position available for phosphorylation, the position of the phosphate group should always be indicated by number or Greek letter.

4.2 The capital *P* when linked to one radical indicates -PO(OH)<sub>2</sub> or any ion derived from it; when linked to two radicals it indicates -PO(OH)-, or the ion derived from it.

4.3 The pyrophosphate group (I) is represented by -*P-P*-



\* Comment. This type of partial abbreviation (e.g., glucose-6-*P*) is convenient in bio-chemical papers where there is much discussion of phosphorylated metabolites and intermediates. It is not commonly used in organic chemical papers.



Two separate phosphate groups, attached at different points to the same molecule, are represented by  $P_2$ .

Examples:

Glucose 6-phosphate	Glucose-6- <i>P</i> or Glc-6- <i>P</i>
{Glycerol 1-phosphate	{Glycerol-1- <i>P</i>
{or $\alpha$ -phosphoglycerol	{ $\alpha$ - <i>P</i> -Glycerol
{3-Phosphoglyceric acid	{3- <i>P</i> -Glyceric acid
{Glycerate 3-phosphate	{Glycerate-3- <i>P</i>
Phosphoenolpyruvate	<i>P</i> -Enolpyruvate
Fructose 1, 6-diphosphate	Fructose-1,6- $P_2$ or Fru-1,6- $P_2$
{Creatine phosphate	{Creatine- <i>P</i>
{Phosphocreatine	{ <i>P</i> -creatine

4.4 The term diphosphate (and the abbreviation DP) should not generally be used for the pyrophosphate group. Exceptions are made for some important compounds (e.g., ADP; para. 5.12).

## 5. Nucleotides and Nucleic Acids

5.1 Two systems are permitted, one of which employs three-letter symbols for the ribonucleosides, similar to those used for amino acids and monosaccharides, while the other uses single capital letters.

5.2 If symbols are necessary for unusual sugars or bases, or for abnormal linkages between sub-units, e.g.  $\alpha$ -glycosidic linkages, these must be defined in each paper.

### *Three-letter symbols*

5.3 The phosphate group is designated by an italic capital *P* (cf. Section 4), and the point of attachment shall in all cases be specified.

5.4 The ribonucleosides are designated by the following three-letter symbols, which are chosen to avoid confusion with the corresponding bases:

Ado	adenosine	Tho	ribosylthymine
Cyd	cytidine	Urd	uridine
Guo	guanosine	Xao	xanthosine
Ino	inosine		

Ribosylnicotinamide is similarly designated by Nir.

5.5 The 2-deoxyribonucleosides are designated by the symbols for the corresponding ribose derivatives, with the prefix de: thus, e.g. 2-deoxyadenosine, deAdo.

5.6 The positions of phosphate linkages to sugar are designated by *primed* numerals, and the links between units indicated by dashes (as for polysaccharide abbreviations, but with primes added).

Examples:

- (i) Nucleoside monophosphates, Ado-2'-*P*, Guo-3'-*P*, deAdo-5'-*P*.
- (ii) Dinucleotides, *P*-5'-Ado-3'-*P*-5'-Guo, Ado-3'-*P*-5'-Guo-3'-*P*.
- (iii) A trinucleotide. Ado-3'-*P*-5'-Guo-3'-*P*-5'-Urd-3'-*P*.

5.7 A cyclic phosphate group is designated by the numbers of the two hydroxyl groups which are esterified. Thus, e.g., 2',3'-*P*, as in Ado-3'-*P*-5'-Guo-2',3'-*P*.

5.8 The so-called nucleoside-diphosphate-sugars, which are really pyrophosphates, are represented as follows:

Urd-5'- <i>P</i> - <i>P</i> -Glc	= Uridine diphosphate glucose
Urd-5'- <i>P</i> - <i>P</i> -Gal	= Uridine diphosphate galactose.

### One-letter symbols

(Chiefly for use in polynucleotides)

5.9 The common ribonucleosides may be designated by initial capital letters thus:—

A adenosine	T ribosylthymine
C cytidine	U uridine
G guanosine	

2-Deoxyribonucleosides may be designated by the same letters with the prefix *de*; e.g., *deA* = 2-deoxyadenosine.

5.10 The phosphate group is indicated in this system of symbols by a lower-case letter '*p*' (to separate what would otherwise be a solid mass of capital letters).

The points of attachment of the phosphate groups to the nucleosides are indicated by numerals as in para. 5.6, or by the abbreviated methods shown below in para. 5.11.

### Abbreviated forms

5.11 If the internucleotidic linkage is regular, as in the known natural polynucleotides, the symbols may be abbreviated still further by placing the numerals indicating the positions of the phosphate linkages in front of the whole series of symbols. The symbols 3', 5'- in front of a series indicate that each phosphate group is linked to the 3'-hydroxyl group of the nucleoside to its *left* in the sequence and to the 5'-hydroxyl group of the nucleoside to its *right* in the sequence.

The letters '*de*' may also be used as a prefix to the series, to indicate that *all* the sugars concerned are 2-deoxysugars.

Examples for three-letter and one-letter symbols are as follows:

(i) ribotrinucleotide with phosphate groups linked to 3' and 5' hydroxyl groups of successive sugars.

Full three-letter symbols

Ado-3'-*P*-5'-Guo-3'-*P*-5'-Urd-3'-*P*

Abbreviated three-letter symbols

3', 5'-(Ado-*P*-Guo-*P*-Urd-*P*)

Abbreviated one-letter symbols

3', 5'-(ApGpUp)

(ii) a deoxyribo-dinucleotide with an extra phosphate group at *O*-5' on the first-named unit.

de-3', 5'-(*P*-Cyd-*P*-Ado-*P*) = de-3', 5'-(pCpAp)

(iii) a regular hexanucleotide of 3', 5'-linked adenylic acid units

3', 5'[Ado-*P*]<sub>6</sub> = 3', 5'-[Ap]<sub>6</sub>

### Special abbreviations

5.12 The 5'-mono-, di- and tri-phosphates of the common nucleosides may be designated by the customary special abbreviations; e.g., AMP, ADP, and ATP for the derivatives of adenosine. The corresponding derivatives of cytosine, guanine, inosine, and uridine may be designated by similar abbreviations in which the initial letters are C, G, I, U respectively. Thus, e.g., IMP = inosine 5'-monophosphate, UDP = uridine 5'-diphosphate

These compounds should, however, be designated in more 'chemical' papers by systematic symbols as indicated in para. 5.6, thus, e.g., Ado-5'-*P*, Ado-5'-*P*-*P*, Ado-5'-*P*-*P*-*P*, when required for consistency with the other nucleotides.

5.13 Flavin mononucleotide (riboflavin 5'-phosphate) may be designated by the special abbreviation FMN.

5.14 The two types of nucleic acid are designated by their customary abbreviations:

RNA, ribonucleic acid  
or ribonucleate

DNA, deoxyribonucleic acid  
or deoxyribonucleate.

## 6. Coenzymes

There has been much controversy about names and symbols for the nucleotide coenzymes (DPN *versus* Co I, etc.).

The Enzyme Commission of the International Union of Biochemistry decided in August, 1959, to recommend the following names, for the reasons briefly stated in the comment below.

Nicotinamide—adenine dinucleotide\* for the compound hitherto commonly called diphosphopyridine nucleotide or Coenzyme I.

Nicotinamide—adenine dinucleotide phosphate for the compound hitherto commonly called triphosphopyridine nucleotide or Coenzyme II.

The Biological Chemistry Nomenclature Commission of IUPAC after discussion accepted these recommendations of the Enzyme Commission.

*Comment* (cf. DIXON, M. *Nature*, 188, 464; 1960).

The two main systems of nomenclature of the nicotinamide nucleotide coenzymes (the CoI and the DPN systems) are both unsatisfactory. The first gives no indication of the chemical structure at all; the second indicates a chemical structure which is incorrect.

Since no compromise between the two systems is possible, the only satisfactory solution is to abandon both and to adopt a name which indicates the correct chemical structure. The name adopted should be consistent with the existing names of three closely related compounds, namely the corresponding mononucleotide (nicotinamide mononucleotide, NMN) and the two flavin nucleotides (flavin—adenine dinucleotide, FAD, and flavin mononucleotide, FMN).

The name which the Enzyme Commission of IUB, after careful consideration of possible alternatives, has decided to recommend in place of CoI or DPN, namely nicotinamide—adenine dinucleotide (NAD), not only indicates the structure satisfactorily, but forms a logical system with the three which are already generally accepted\*\*.

CoII or TPN is a phosphorylated derivative of NAD, and may be called nicotinamide—adenine dinucleotide phosphate, conveniently abbreviated to NADP.

6.1 The dinucleotide coenzymes may be designated by the following abbreviations:

Nicotinamide—adenine dinucleotide                      NAD  
(formerly DPN, CoI)

Nicotinamide—adenine dinucleotide phosphate    NADP  
(formerly TPN, CoII).

\* The symbol between nicotinamide and adenine and in similar places is an *en-rule* (in English typographical language) not a *hyphen*; this is intended to show that the compound is a hybrid derivative (dinucleotide) of nicotinamide and adenine.

\*\* Correspondence with members of Commissions, Editors and workers in the field indicates that there is a considerable body of opinion in favour of the traditional DPN-TPN system of nomenclature and abbreviations. It therefore seems appropriate to acknowledge that some workers may still wish to use the DPN-TPN system; it is hoped that those who do so will follow the principles of abbreviation indicated here for NAD and NADP.

6.2 It is often necessary to distinguish by abbreviations the oxidized and reduced forms of these coenzymes. Two methods have been used in the past, and it is felt necessary to retain both of these, using as basic abbreviations NAD and NADP.

The two forms are as follows:

	<i>Oxidized Form</i>	<i>Reduced Form</i>
<i>A</i>	{NAD {NADP	{NADH <sub>2</sub> {NADPH <sub>2</sub>
<i>B</i>	{NAD <sup>+</sup> {NADP <sup>+</sup>	{NADH {NADPH

These abbreviations may be used in equations thus



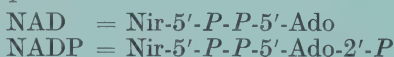
It is important to note that the two forms of representation (*A* and *B*) must *not* be mixed. For example, if NAD is used in a particular paper for the oxidized form of the coenzyme, NADH *cannot* correctly be used for the reduced form.

6.3 Other coenzymes may be designated as follows:

FAD, FADH <sub>2</sub>	Flavin—adenine dinucleotide, and its reduced form
FMN, FMNH <sub>2</sub>	Flavin mononucleotide, and its reduced form
GSH, GSSG	Glutathione, and its oxidized form
CoA, acetyl-CoA	Coenzyme A and its acetyl derivative. (alternative forms)
or CoASH, CoASAc	

6.4 Systematic symbols may be built up for some of these coenzymes as shown in para. 5.6:

Examples:



## 7. Miscellaneous Compounds

7.1 The following abbreviations are permitted; although they are fairly common, they should be defined in any paper if it is thought that readers might be unfamiliar with them. Some abbreviations are taken from the list published by *Ann. Rev. Biochem.*

ACTH	adrenocorticotropin, adrenocorticotropic hormone, or corticotropin
BAL	2,3-dimercaptopropanol
CM-cellulose	carboxymethyl-cellulose
DDT	1, 1, 1-trichloro-2, 2-bis( <i>p</i> -chlorophenyl)ethane
DEAE-cellulose	diethylaminoethyl-cellulose
DFP	di-isopropyl phosphorofluoridate
DNP-	2, 4-dinitrophenyl-
DOC	11-deoxycorticosterone
DOCA	11-deoxycorticosterone acetate
DOPA	3, 4-dihydroxyphenylalanine
EDTA	ethylenediaminetetra-acetic acid (or -acetate)
FDNB	1-fluoro-2, 4-dinitrobenzene
Hb	haemoglobin (deoxygenated)



HbCO	'carboxy'haemoglobin—i.e. haemoglobin + carbon monoxide
HbO <sub>2</sub>	oxyhaemoglobin
MetHb	methaemoglobin
Mb	deoxygenated myoglobin (may be modified in the same way as Hb)
MSH	melanocyte-stimulating hormone
TEAE-cellulose	triethylaminoethyl-cellulose
Tris	tris(hydroxymethyl)aminomethane; 2-amino-2-hydroxymethylpropane-1, 3-diol

7.2 If one-letter symbols for steroids (Compound F, Substance S) are used, the systematic name of the compound must be given at least once in each paper. Derivatives, such as 'tetrahydro-E' and '11-epi-F' must also be clearly defined by systematic names.

## 8. Standards for new abbreviations

8.1 Abbreviations other than those listed or defined above should be constructed in accordance with the following principles.

8.2 The number should be limited; none should be introduced except where repeated use is required. Three-letter abbreviations are most convenient.

Duplication in another sense of an accepted abbreviation *must* be avoided.

Where a number of derivatives, salts, or addition compounds may be formed, the name of the common fundamental structure should be the one abbreviated, so that other symbols may be attached to it.

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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 14A**

**14 JULY 1961**





## INTRODUCTION

We should like to open this issue of the Information Bulletin by welcoming all delegates to the Montreal Conference and Congress and wishing them an enjoyable and fruitful stay in Canada.

Information Bulletin No. 14 will be split in two parts: No. 14a is designed to provide last-minute information to the delegates to the Conference (2-5 August) and to those who are attending the XVIIIth International Congress of Pure and Applied Chemistry (6-12 August). Some hints are given below which, it is hoped, will help everybody to enjoy their stay and to make the most of the opportunities provided. Most of this information emanates from our Canadian friends. This should also be of interest to those friends of IUPAC who will be prevented from attending these meetings. No. 14b, on the other hand, will contain some of the more important results of the Conference and Congress and will come out after the meetings.

## GENERAL INFORMATION

### *(1) Transport to Montreal*

I am glad to be able to tell you that it has been possible to arrange a charter flight to Montreal from Paris through AIR FRANCE. A Boeing-707 will be provided, with mixed First and Economy Class accommodation. Service will be first class for all passengers.

The timetable is as follows:

1 August	Check in at Air Terminal	09.20 (local time)
	Paris (Orly) depart	11.20 (local time)
	Montreal (Dorval) arrive	13.50 (local time)
14 August	Check in at Air Terminal	18.00 (local time)
	Montreal (Dorval) depart	19.20 (local time)
15 August	Paris (Orly) arrive	07.00 (local time)

I should like to point out that it is still not too late to take part in this flight, and if you would like to do so it is still possible to change your booking through your local branch of Thos. Cook & Son or Wagons-Lits Cook. It will be a very good start to the Conference if all delegates can travel together.

### *(2) Transport in Montreal*

Special transport by bus from central Montreal to the Centre Social has been arranged *for only the two Council meetings on 2 August and 5 August*. Details are as follows:

2 August	Leave Queen Elizabeth Hotel for Centre Social	14.30
	Leave Centre Social for Queen Elizabeth Hotel	18.15
5 August	Leave Queen Elizabeth Hotel for Centre Social	08.30
	Leave Centre Social for Queen Elizabeth Hotel	12.30

Delegates will have to arrange their own transport for all other meetings. Although bus service between the Centre Social and central Montreal is available, it is suggested that if groups of four or five delegates travel by taxi, the shared cost will approximate that of bus transport. The journey takes about 20 minutes by bus or taxi, but delegates should bear in mind that the traffic problem is acute in Montreal and that they should allow plenty of time to get to meetings. Attention is also drawn to the fact that street parking in central Montreal, including areas immediately adjoining the University of Montreal and McGill University, is very limited, and there

is an acute lack of space for cars on the campuses of the two universities. Commercial off-street parking lots and garages are readily available. *There are no facilities for parking at University residences.*

### *(3) Meetings*

(The detailed programme follows on page 4.)

All meetings of the Conference will be held in the Social Centre of the University of Montreal, except for the following, which will be held in the Queen Elizabeth Hotel: Executive Committee—31 July; Executive Committee—1 August; meeting of all Secretaries with the Secretary-General—6 August; meeting of all Secretaries of the Member Countries with the Secretary-General—7 August.

Meetings of the Congress will be held at the Queen Elizabeth Hotel, the University of Montreal and McGill University. Delegates will receive final details of these meetings on registering for the Congress.

### *(4) Registration*

Delegates to the *Conference* are requested to register as soon as possible after arrival at the Information Area in the Foyer of the Centre Social of the University of Montreal.

The Headquarters of the *Congress* will be situated at the Queen Elizabeth Hotel, Dorchester Street, and the general registration area will be on the main mezzanine floor of this hotel. Delegates should report to the registration area as soon as possible and will receive the General Programme, a book of Abstracts of Papers, tickets for the Entertainment and other material. This registration area will open at 9.00 a.m. on Saturday, 5 August 1961, and will remain open for the period of the Congress.

### *(5) Accommodation*

It is to be hoped that by this time all those who intend to go to Montreal have already arranged their hotel accommodation. If not, they should do so as soon as possible.

### *(6) Payment of travel and subsistence allowances*

Titular Members may collect their travel and subsistence allowances either from the Queen Elizabeth Hotel or from the Social Centre (from Mr. G. HANSELMANN or Mrs. S. AVANTHAY) on 2, 3 and 4 August.

### *(7) Postal facilities*

There are no facilities for dispatching or receiving mail at University Residences, and delegates to the Conference with reservations at the residences of McGill University or the University of Montreal should arrange for their personal mail to be addressed in care of:

XXIst International Conference of Pure and Applied Chemistry  
Centre Social, Université de Montréal  
2232 Maplewood Avenue, Montreal

This mail should then be collected from the General Information Desk in the Foyer of the Social Centre. Delegates who wish to leave messages for other delegates may do so at the General Information Desk. Delegates are therefore urged to call at the desk and enquire if there are any messages for them.

### *(8) Catering facilities*

Luncheon and dinner will be available at the Centre Social at very reasonable rates. Bar facilities will also be available.

### *(9) Banking facilities*

There are many banks in the Montreal area, all of which are equipped to

handle foreign exchange. It is of utmost importance for delegates to remember that banks in central Montreal are open *only from 10.00 a.m. to 3.00 p.m., Monday through Friday*. Delegates arriving late Friday, Saturday or Sunday should therefore arrange to have sufficient funds to meet their expenses until the following Monday.

#### *(10) Entry into Canada*

Delegates from those countries for whom an entry visa is required by Canada are urged to take immediate steps to obtain their visa from the nearest Canadian Embassy or Consular Office. Delegates arriving in Canada from countries other than the United States must have in their possession a certificate of vaccination against smallpox, which indicates that they have been vaccinated within three years immediately preceding their arrival or have had smallpox during this period.

#### *(11) Weather and clothing*

Formal dress will not be essential for any social event sponsored by the Congress Secretariat, although it would be desirable for gentlemen to wear dinner jacket or dark suit to the Congress Dinner on 10 August. Daytime temperatures in Montreal in August range from 65°F to 85°F (18°C to 30°C). Raincoats may be needed, as occasional showers can be expected.

#### *(12) Social events*

A programme of social events has been arranged by our Canadian colleagues, including a Congress Dinner at the Queen Elizabeth Hotel on the evening of 10 August. There is also a programme of entertainment for the ladies accompanying delegates. You are referred to the third circular of the Congress for further information on this subject and the Congress in general.

#### *(13) Executive Committee*

The President of IUPAC, Prof. W. A. NOYES, Jr., will be staying at the Hotel Queen Elizabeth. The Honorary Treasurer, Sir CHARLES DODDS, and the Secretary-General, Dr. RUDOLF MORF, will be staying at the Ritz Carlton Hotel.

#### *(14) Bureau and Council Meetings*

Attention of delegates to these meetings is drawn to the fact that dossiers containing all necessary documents will be provided in Montreal.

### **EDITORIAL**

It is with deep regret that we record the resignation from the Bureau and Executive Committee of Academician B. A. KASANSKI, from Moscow, due to ill health. He has been a very active member of the Bureau since 1955 and of the Executive Committee since 1957, and we wish to express our appreciation of his co-operation and advice during these years. It is to be hoped that he will soon recover his health.

On the other hand, it is a pleasure to note that Prof. W. KUHN, President of the Physical Chemistry Section 1957-1961, and Academician W. ENGELHARDT, Vice-President of the Bureau of the International Council of Scientific Unions and former member of our Biological Chemistry Section Committee, have been elected members of the Academy of Arts and Sciences in Washington. We should like to congratulate them on this honour, on behalf of IUPAC.

Prof. A. TISELIUS, our Past President, was presented with the P. Karrer Prize on Wednesday 5 July in ZURICH.

UNION INTERNATIONALE DE CHIMIE PURE ET APPLIQUÉE  
INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

## **XXIst CONFERENCE — MONTREAL**

**2—5 August 1961**

### **PROGRAMME**

- E** = Salon des professeurs Est
- R** = Residence
- C.S.** = Centre Social
- ()** = Number of delegates
- O** = Salon des professeurs Ouest



# AGENDA OF THE BUREAU AND COUNCIL MEETINGS IN MONTREAL

2–5 August 1961

- (1) Statutory Report of the President on the General State of the Union
- (2) Adoption of the Comptes Rendus of the XXth Conference
- (3) Ratification of the appointment of a Finance Committee
- (4) Ratification of the appointment of a Drafting Committee
- (5) Biennial Report of the Honorary Treasurer, comments of the Finance Committee
- (6) Headquarters of IUPAC (see Chapt. I, art. 1, § 5 of the Statutes)
- (7) Proposal of the British National Committee with regard to the interest of the chemical industry
- (8) Adhering Bodies
  - (a) Approval of new Adhering Bodies, if any
  - (b) Approval of the change of category of certain Adhering Bodies
- (9) Approval of the preliminary budget for 1962 and 1963
- (10) Limitation of the number of titular members in Divisions and Commissions
- (11) Ratification by the Bureau of the decisions taken by the Executive Committee
- (12) Ratification by the Council of the decisions taken by the Bureau since the XXth Conference
- (13) Adoption of the Section Presidents' Reports previously submitted to the Bureau and the Council in writing
- (14) Minutes of the Section Presidents' meetings—London, 1960–1961
- (15) Final decision regarding the new atomic weights scale
- (16) Report by the Ad Hoc Committee appointed to describe the functions of the officers of the Union, of Sections, Divisions and Commissions (Prof. P. Verkade, Chairman)
- (17) Problems regarding publications and report of the Editorial Board
- (18) Recommendations concerning the fundamental units of mechanics—MKSA—CGS system
- (19) Proposal of tentative nomenclature rules (Steroids, Abbreviations, etc.)
- (20) Copyright and translation
- (21) Rules regarding the election and term of office of the Union's officials and of the members of Commissions
- (22) Problems regarding the Applied Chemistry Section
- (23) Chemical Engineering
- (24) Possible co-operation with WHO—"generic names"
- (25) Possible co-operation with ISO
- (26) Report of the Section Presidents on the results of the Conference
- (27) Report of the Finance Committee
- (28) Election of three Bureau members
  - Approval of the elections made by the Sections
- (29) Meetings scheduled for 1962 and 1963
- (30) Date and place of the XXIIInd Conference and the XIXth Congress
- (31) Programme and subjects of future Congresses (see resolution by the Section Presidents of 9th April, 1958)
- (32) Affiliation of the Congress of Catalysis, the World Petroleum Congress, etc.
- (33) Any other business

## PROGRAMME FOR THE XX1st CONFERENCE

All meetings of the Conference will be held in the premises of the Social Centre, University of Montreal.

Executive Committee	Monday, 31, all day Tuesday, 1, all day Saturday, 5, after the Bureau meeting Grand Salon B (15)
Bureau	Wednesday, 2, 9.00–13.00 Grand Salon B (25) Saturday, 5, 16.00–18.00 If not downtown Grand Salon B (25)
Council	Wednesday, 2, 15.00 Grand Salon A (250) Saturday, 5, 9.00 Grand Salon A (250)
Meeting of Section Presidents and Secretaries with the Secretary General	Tuesday, 1, 17.00 Grand Salon B (15)
Meeting of all Secretaries with the Secretary General	Sunday, 6, 1 h. $\frac{1}{2}$ before the opening of the Congress
Meeting of all Secretaries of the Adhering Bodies with the Secretary General	Monday, 7 one meeting before the first Bureau meeting Convention Floor, Queen Elizabeth Hotel (time to be announced)
Editorial Board	Thursday, 3, 10.00 Grand Salon B (15) Friday, 4, 10.00 Grand Salon B (15) Sunday, 6, time not yet fixed Convention Floor, Queen Elizabeth Hotel

### PHYSICAL CHEMISTRY SECTION

Section Committee	Thursday, 3, 9.00–11.00 R. 558 (15)
Meeting of the whole Section	Thursday, 3, 11.00–12.00 R. 558 (25)

Commission on Physico-Chemical Symbols and Terminology	<p>Wednesday, 2, 9.00–12.00 R. 358 (12)</p> <p>14.00–15.00 R. 358 (12)</p> <p>Thursday, 3, 14.00–19.00 R. 358 (12)</p> <p>Friday, 4, 9.00–12.00 R. 358 (12)</p>
Commission on Chemical Thermodynamics	<p>Wednesday, 2, 14.00–15.00 R. 458 (15)</p> <p>Friday, 4, 9.00–12.00 R. 458 (20)</p> <p>14.00–17.00 R. 458 (20)</p>
Subcommission on Experimental Thermochemistry	<p>Wednesday, 2, 15.00–17.00 R. 358 (12)</p> <p>Thursday, 3, 14.00–17.00 R. 157 (15)</p>
Subcommission on Experimental Thermodynamics	<p>Wednesday, 2, 15.00–17.00 R. 458 (12)</p> <p>Friday, 4, 9.00–12.00 R. 157 (12)</p>
Commission on Electrochemistry (black-board, facilities for diascopic and episcopic projection, 20 seats)	<p>Thursday, 3, 9.00–12.00 R. 159 (20)</p> <p>Friday, 4, 9.00–12.00 R. 159 (20)</p> <p>14.00–18.00 R. 159 (20)</p>
Commission on Macromolecules (administrative facilities—typing facility for the minutes of the meetings—20 copies of 3 foolscap pages—/20 seats)	<p>Friday, 28, 17.00 Grand Salon B (20)</p> <p>Monday, 31, 17.00 Convention Floor, Queen Elizabeth Hotel</p>
Commission on Physico-Chemical Data and Standards	<p>Thursday, 3, 14.00 R. 558 (20)</p> <p>Friday, 4, 9.30 R. 558 (20)</p>
Commission on Molecular Structure and Spectroscopy	<p>Thursday, 3, 14.00–19.00 R. 458 (20)</p> <p>Friday, 4, 14.00–19.00 R. 558 (20)</p>
Joint meeting of the Commission on Electrochemistry and the Commission on Physico-Chemical Symbols and Terminology	date not yet fixed

Joint meeting of the Commission on Electrochemistry and the Commission on Electrochemical Data (Analytical Section)	date not yet fixed
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Joint Commission on Applied Radioactivity	no meeting
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CITCE	7-10 August, 1961
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## INORGANIC CHEMISTRY SECTION

Section Committee	Thursday, 3, 9.00 C.S. 409 (12)
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Commission on Atomic Weights (10 seats)	Wednesday, 2, 14.00 C.S. 407 (10) Thursday, 3, 10.00 C.S. 407 (10)
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Commission on Nomenclature	no meeting
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Commission on High Temperatures and Refractories	Friday, 11, 10.00-12.00 C.S. 607 (20)
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Subcommission on Gases	Thursday, 10, 15.00-17.00 C.S. 305 (12)
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Subcommission on Condensed States	Thursday, 10, 10.00-12.00 C.S. 305 (12)
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Commission on Geochemistry	no meeting
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## ORGANIC CHEMISTRY SECTION

Section Committee	Thursday, 3, 9.00 C.S. 606 (12)
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Commission on Nomenclature	at Columbus / Ohio Friday, 21 July Saturday, 22 July
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Commission on Codification, Ciphering and Punched Card Techniques	at Columbus / Ohio Friday, 21 July Saturday, 22 July
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## BIOLOGICAL CHEMISTRY SECTION

Officers of the Biological Chemistry Section	Thursday, 3, 9.00 R. 358 (15) Friday, 4, 10.00 Salle de lecture des Messieurs (20)
Commission on Nomenclature	will not meet in Montreal
Commission on Protein Standards	will not meet
Commission on Clinical Chemistry	will not meet

## ANALYTICAL CHEMISTRY SECTION

Section Committee (meetings on 3rd, 15 persons; meeting on 4th, 50 persons) Commission on Analytical Reactions (15 persons)	Thursday, 3, 9.00–12.00 C.S. 705 (15) 14.00–17.00 C.S. 705 (15) Friday, 4, 14.00–17.00 C.S. 705 (15) Wednesday, 2, 9.00–12.00 C.S. 607 (15) 14.00–17.00 C.S. 607 (15) Friday, 4, 9.00–12.00 C.S. 607 (15)
Commission on Microchemical Techniques (12 persons)	Thursday, 3, 14.00–17.00 C.S. 305 (12) Friday, 4, 9.00–12.00 C.S. 612 (12)
Commission on Nomenclature (12 persons)	Wednesday, 2, 14.00–17.00 C.S. 305 (12) Thursday, 3, 9.00–12.00 C.S. 305 (12) Friday, 4, 9.00–12.00 C.S. 305 (12)
Commission on Optical Data (15 persons)	Wednesday, 2, 14.00–17.00 C.S. 705 (15) Friday, 4, 9.00–12.00 C.S. 705 (15) Saturday, 5, 9.00–12.00 C.S. 705 (15)

Commission on Electrochemical Data (15 persons)	Saturday, 5, 9.00-12.00 / C.S. 607 (15) 14.00-17.00 C.S. 607 (15)
Commission on Equilibrium Data (15 persons)	Thursday, 3, 9.00-12.00 C.S. 607 (15) Friday, 4, 9.00-12.00 C.S. 711 (15)

#### APPLIED CHEMISTRY SECTION

Section Committee	Thursday, 3, 9.00 Salon des prof. E (20) Friday, 4, 9.00 Salon des prof. E (20)
Food Division	will not meet in Montreal
Water, Sewage and Industrial Wastes Division	will not meet in Montreal
Pulp, Paper and Board Division	Thursday, 3, 14.30 Salle de lecture des Messieurs (20)
Plastics and High Polymers Division	Thursday, 3, 14.30 Salon des prof. E (20)
Pesticides Division	Thursday, 3, 14.30 Salon des prof. O (15)
Organic Coatings Division	will meet in Copenhagen
Toxicology and Industrial Hygiene Di- vision	Thursday, 3, 15.00-18.00 C.S. 607 (20) Friday, 4, 15.00-18.00 C.S. 607 (15)
Fermentation Division	no meeting
Oils and Fats Division	no meeting
Food Additives Commission	Thursday, 3, 15.00-18.00 C.S. 711 (20) Friday, 4, 15.00-18.00 C.S. 711 (15)
Open meeting	.....

## PRE-CONGRESS AND POST-CONGRESS SYMPOSIA

### *(1) International Symposium on Macromolecular Chemistry*

The International Symposium on Macromolecular Chemistry which is to be held in Montreal, Canada, 27 July to 1 August 1961, is organized by the Canadian High Polymer Forum and is jointly sponsored by the Division of Polymer Chemistry of the American Chemical Society and the Commission on Macromolecules of the International Union of Pure and Applied Chemistry. The Symposium will embrace all aspects of high polymer science with special emphasis on the newer fields of research. The Chairman of the Organizing Committee is Dr. H. LEVERNE WILLIAMS, P.O. Box 816, Sarnia, Ontario, Canada, to whom all inquiries concerning the Symposium should be addressed.

### *(2) International Calorimetry Conference*

The International Calorimetry Conference which is to be held in Ottawa, Canada, 14 to 17 August 1961, is jointly sponsored by the Calorimetry Conference (held annually in the United States) and by the Sub-Commission on Experimental Thermochemistry. The specific topics to be discussed will include: general thermochemistry; biological thermochemistry; calorimetry of non-reacting systems; experimental techniques and apparatus pertinent to calorimetry, such as temperature measurements and thermometers.

The programme chairman is Dr. J. E. KUNZLER, Bell Telephone Laboratories, Inc., Murray Hill, New Jersey, USA, to whom inquiries concerning the programme should be addressed.

### *(3) International Symposium on Microchemical Techniques*

The 1961 International Symposium on Microchemical Techniques, organized by the Metropolitan Microchemical Society, under the sponsorship of IUPAC (Commission on Microchemical Techniques, Section of Analytical Chemistry), will take place 13 August through 18 August 1961 at The Pennsylvania State University, University Park (State College, Center County), Pennsylvania, USA. For further information, please contact Mr. HOWARD J. FRANCIS, Jr., Vice-Chairman, Symposium Committee, Pennsalt Chemicals Corporation, P.O. Box 4388, Philadelphia 18, Pennsylvania, USA.

## TECHNICAL VISITS DURING THE CONGRESS

In order that delegates can observe some of the industrial and research activities in Montreal and the surrounding area, arrangements have been made for visits to the establishments listed below. The only charge to delegates for these visits will be the cost of bus transportation, which will range from 50 cents to 2 dollars approximately. Unfortunately none of these establishments can accommodate large numbers of visitors, and transportation tickets (which will be available in the registration area of the Queen Elizabeth Hotel) will therefore be sold on a first-come-first-serve basis. Because of this, delegates are encouraged to purchase transportation tickets for visits of interest to them soon after their arrival in Montreal. Information about the departure point for buses, duration of each visit, etc., will be included in the General Programme and will also be available in the registration area. In order to accommodate as many visitors as possible, visits to several of the establishments have been arranged for more than one day.

*Pulp and Paper Research Institute of Canada, Pointe Claire, Quebec*  
(7, 9 and 11 August 1961)

The Institute is supported by the Government of Canada, the Canadian pulp and paper industry and McGill University of Montreal. It acts as a fundamental research center for Canada's pulp and paper industry, performing work which may reach into any aspect of the process of converting celulosic plant materials into pulp and paper, and other products. It also performs an educational function through an association with McGill University, in which its facilities are used by students doing post graduate work.

*Laurentide Chemicals and Sulphur Ltd., Montreal*

(8 August 1961)

The Company operates a plant for the recovery of sulphur from waste gases and acids which are obtained from neighbouring oil refineries and chemical plants. They produce 100 tons of sulphur per day, and market it locally, in a molten state, to customers who use it for the manufacture of sulphuric acid and sulphite pulp.

*B.A.-Shawinigan Ltd., Montreal*

(8 August 1961)

This company is a joint venture of the British American Oil Company Limited and Shawinigan Chemicals Limited. It operates a plant which was the first of its type in the Western world to produce acetone and phenol from cumene.

*Ayerst McKenna and Harrison Ltd., Montreal*

(8 and 11 August 1961)

The head office, plant and laboratories of this leading pharmaceutical manufacturer are located in the northern section of Montreal. The research staff totals 110 persons. A 1.5 million dollar laboratory expansion programme was completed during 1960, providing new facilities for chemical and pharmacological research.

*Industrial Cellulose Research Ltd., Hawkesbury, Ontario*

(8 and 10 August 1961)

The Company is a wholly owned subsidiary of Canadian International Paper Company. At Hawkesbury, applied and basic research on pulp and paper making processes is conducted, while at other locations, engineering research is done on paper and board for the parent company's paper mills. Some 20 miles from Hawkesbury is the company's Harrington Forest Research Station, which will also be open to visitors.

*Shell Oil Company of Canada Ltd., Montreal*

(9 August 1961)

The facilities of a number of major oil companies in Montreal East aggregate the largest petroleum refining center in Canada. The Shell Oil Refinery, one of this group, has a capacity of 62,000 bbls. per day. In addition to oil refining, the Company operates a petrochemical plant for the production of alcohols, ketones, epoxy resins and detergent alkylate.

*Canadian Industries Ltd., McMasterville, near Montreal*

(9 and 11 August 1961)

The Research Department of Canadian Industries Limited employs about 150 people, of whom one-third are University graduates. The Central Research Laboratory is located twenty miles east of Montreal at McMasterville, where the Company also operates plants producing explosives and agricultural chemicals. The Department is organized in groups conducting exploratory and applied research in a variety of fields, including plastics, high polymers and organic chemistry, chemical engineering and instruments, analytical chemistry, inorganic and general chemistry, physical methods and physical chemistry.



## ENTERTAINMENT

Exact times and locations will be announced in the General Programme.  
Monday, 6 August, 8.30 p.m.

Get-together and Coffee Party at the Queen Elizabeth Hotel. At the invitation of the Organizing Committee.—Free of charge.

Tuesday, 8 August, evening

Open air concert on Mount Royal, Montreal, by the Montreal Symphony Orchestra. Details of programme, conductor, etc., to be announced in General Programme.—Free of charge.

Wednesday, 9 August, evening

Musical ride by the famous Royal Canadian Mounted Police. At the invitation of the RCMP.—Free of charge.

Thursday, 10 August, evening

Congress Dinner at the Queen Elizabeth Hotel (limited to 1800). Dinner jacket or dark suit desirable.—\$10.00 each.

Friday, 11 August, evening

Folk Dancing display by "Lex Feux Follets" in the Canadian and neo-Canadian tradition (limited to 1500).—Free of charge.

Full information regarding theatres, art galleries, night clubs and tours of Montreal will be included in the General Programme.

## LADIES PROGRAMME

There will be a Ladies Lounge located on the convention floor of Congress Headquarters, the Queen Elizabeth Hotel. This lounge will be open from 7 to 11 August, with coffee and rolls being served daily from 9.00 to 10.30 a.m. approximately. Following these coffee hours, there will be special presentations in the Ladies Lounge, i.e., a cooking demonstration, an illustrated talk on Canada and a Fur Fashion review.

Monday, 7 August, 2.00 p.m.

Three hour boat cruise on the St. Lawrence River. The boat will leave Montreal Harbour and cruise past many old French Canadian villages typical of the Province of Quebec. At the invitation of the Ladies Committee. (Number limited to 1000).—Free of charge

Tuesday, 8 August, 10.30 a.m.

Trip, by bus, to the beautiful Laurentian Mountains, with luncheon at an inn 60 miles from Montreal (open to all registrants). (Number limited to 700).—Fee: \$7.00 each.

Wednesday, 9 August, 12.00 noon

Outdoor Barbecue Luncheon at MacDonald College (part of McGill University), in a colourful setting at the Western end of Montreal Island (open to all registrants, including children). (Number limited to 1500).—Fee: \$3.65 each.

Thursday, 10 August, 8.45 a.m.

Breakfast and Fashion Review at T. Eaton Co., Montreal, at the invitation of the T. Eaton Co. (Number limited to 500).—Free of charge.

Friday, 11 August, 12.00 noon

Trip to St. Helen's Island, located in the harbour of Montreal, with luncheon at the Restaurant Hélène de Champlain. (Number limited to 300).—Fee: \$3.75 each.

Or: 2.30 p.m.

Visit, with tea, to historic Château de Ramezay, the former residence of Governors of Montreal, which houses a most interesting collection of relics. (Number limited to 200.)—Fee: \$1.90 each.

In addition to the above, Ladies will have an opportunity to take part in guided tours of St. Joseph's Oratory, Montreal Museum of Fine Arts, University of Montreal and McGill University and the National Film Board of Canada. Complete details of these tours, as well as the above Special Events, will be contained in a special Ladies Programme, copies of which will be distributed to the Ladies on their arrival at Congress Headquarters.

*It must be noted that the number of guests that can be accommodated for any of the above Special Events is strictly limited.* In the case of events where a fee is payable, refunds will be made to registrants whose applications were received after the maximum number had been registered.

## Changement de la base de l'échelle des poids atomiques

Lors de la Conférence de Montréal en août 1961 (voir point 15 de l'ordre du jour), une nouvelle table des poids atomiques – basée sur l'isotope pur du carbone-12 – sera soumise au Conseil de l'IUPAC pour approbation définitive. Cette décision revêt un caractère universel et constitue un exemple frappant du genre de problème ne pouvant être résolu que par une organisation internationale jouissant d'une réputation notoire et exerçant une influence considérable. Elle est le résultat d'une coopération étroite, dans le cadre d'une Commission de l'IUPAC, entre différentes disciplines.

L'étude historique de la question, fournie ci-après, est destinée à faciliter les discussions à Montréal et aider les délégués appelés à voter à ce sujet. Elle a également pour but d'attirer l'attention de nos lecteurs sur l'importance primordiale de ce problème.

### *Historique*

C'est le physicien et chimiste britannique JOHN DALTON (1766–1844) qui publia une des premières tables de poids atomiques, basée sur sa théorie. Il avait choisi l'hydrogène comme unité, car cet élément possède le poids atomique le plus petit. A. AVOGADRO et S. CANNIZZARO acceptèrent tous deux la théorie de DALTON et son échelle des poids atomiques.

J.J. BERZELIUS (1799–1848), qui étudia très soigneusement l'équivalence des poids atomiques des différents éléments, fixa arbitrairement à 100 le poids atomique pour l'oxygène. Il fit remarquer que l'oxygène se prête bien comme substance de référence, ayant entre autres le grand avantage de se combiner avec la plupart des éléments, particulièrement en chimie minérale, de sorte que ses poids moléculaire et atomique peuvent être mesurés directement. Au contraire, le grand inconvénient de l'hydrogène, en tant qu'unité de référence, est qu'il ne se combine directement qu'avec un nombre limité d'éléments. Il fallait donc dans la plupart des cas établir la relation de ces éléments tout d'abord par rapport à l'oxygène. D'autre part, la relation de l'oxygène avec l'hydrogène ne pouvant jamais être déterminée avec une précision absolue, des erreurs au sujet de ce rapport provoquèrent des inexactitudes dans les valeurs de tous les autres poids atomiques.

L'échelle des poids atomiques de DALTON était encore en usage lors du rapide développement de la chimie organique au milieu du siècle dernier, et ne faisait l'objet d'aucune contestation, d'autant plus qu'en chimie organique l'inconvénient précité n'existe pas pour l'hydrogène. En 1883, LOTHAR MEYER et K. SEUBERT ont appliqué une nouvelle technique pour déterminer les relations et sont arrivés au rapport suivant : l'oxygène est à l'hydrogène ce que 15,96 est à 1, qui fut corrigé plus tard par : l'oxygène est à l'hydrogène ce que 15,879 est à 1.

F.W. CLARKE – USA Geological Survey, Washington – publia dans le 7<sup>e</sup> rapport annuel du Comité américain des Poids atomiques [1] deux tables de poids atomiques, l'une basée sur l'hydrogène = 1 et l'autre sur l'oxygène = 16.

C'est la Deutsche Chemische Gesellschaft de Berlin qui prit l'initiative de traiter ce sujet à un échelon international. Donnant suite à la proposition d'EMIL FISCHER, cet organisme désigna un comité de travail, présidé par H. LANDOLT et comprenant WILLIAM OSTWALD et K. SEUBERT comme membres. Ce comité fut prié de prendre contact avec les sociétés chimiques et autres institutions similaires dans tous les pays afin de créer un comité

international chargé – soit par correspondance, soit par des relations personnelles – de remédier à la situation chaotique régnant dans le domaine des poids atomiques [2]. Ce fut l'une des premières tentatives de coopération internationale dans le domaine de la chimie théorique.

(En chimie appliquée, en revanche, longtemps auparavant déjà, des chimistes belges de l'industrie sucrière avaient essayé d'aboutir à un accord international sur plusieurs problèmes, l'évaluation de la teneur en sucre, par exemple.)

Cette Commission allemande des poids atomiques prit contact avec toutes les sociétés chimiques et autres organisations intéressées, ainsi qu'avec quelques chimistes éminents, au sujet de la question de savoir s'il fallait, pour les poids atomiques, se baser comme unité sur l'hydrogène ou sur l'oxygène; elle reçut une cinquantaine de réponses. Nous pensons qu'il vaut la peine de citer ci-dessous quelques extraits de cette correspondance afin de vous donner une idée de l'opinion prévalant et du climat de coopération qui régnait au début du XX<sup>e</sup> siècle:

«I have the honour to announce to you the appointment by the American Academy of Arts and Sciences, an institution which has always taken the greatest interest in chemistry, of a committee of three to act with the Committee on Atomic Weights of the German Chemical Society. The members of this committee are Dr. W. GIBBS, I. REMSEN and T. W. RICHARDS.»

«I am decidedly of the opinion that it is best to take oxygen-16 as more advantageous.»

«I think it is best to give the atomic weights with all the decimals as determined by the best authorities.»

«I think that if any prominent chemist would undertake to give a yearly account of progress in the determination of atomic weights with criticisms the arrangement would be most simple and convenient.»

«Mir ist in erster Linie daran gelegen, dass die geplante Einigung überhaupt zustande kommt. Sollte also eine Mehrheit für die Grundlage H = 1 ergeben, so würde mich dieser meinerseits nicht entgegenstellen.»

A la suite de cette enquête, le second rapport de la Commission allemande des poids atomiques [3] mentionna, en date du 6 juin 1900, les résultats suivants:

40 chimistes en faveur de oxygène	= 16
7 chimistes en faveur de hydrogène	= 1
2 abstentions	

Néanmoins, le troisième rapport – paru le 4 décembre 1901 [4] – indique de nouveaux suffrages:

106 chimistes en faveur de hydrogène	= 1
78 chimistes en faveur de oxygène	= 16

Il est intéressant de noter que A. VON BAYER et G. VOLHARDT firent des réserves sur l'opportunité de trancher des questions aussi théoriques sur la base de l'opinion de la majorité.

Il fut estimé que, par la consultation d'un aussi grand nombre de chimistes (environ 200), il n'était pas possible d'aboutir à des résultats concluants, et il fut décidé à l'unanimité de nommer un petit comité permanent chargé de poursuivre l'évaluation des poids atomiques. Afin d'assurer une certaine stabilité et continuité, il fut proposé que les tables soient revisées tous les 5 ans seulement. F. W. CLARKE (USA) fut élu Président de ce Comité permanent international des Poids atomiques, et T. E. THORPE (Grande-Bretagne) et K. SEUBERT (Allemagne) désignés comme membres, auxquels se joignit plus tard H. MOISSAN de Paris.



Les premières tables de poids atomiques publiées par ce Comité [5] furent fondées une fois de plus sur un compromis, c'est-à-dire l'établissement de deux tables, l'une basée sur hydrogène = 1 et l'autre sur oxygène = 16. Le Président F. W. CLARKE était, lui-même, certainement en faveur de hydrogène = 1, ainsi que le prouve l'extrait suivant :

« I favour the unit  $H = 1$ , for it applies well to both atomic weights and gaseous densities. For teaching purposes it is simpler than  $O = 16$ , and I believe it to be equally convenient with  $O = 16$ . Any standard other than unity leads ultimately to complication, and the hydrogen unit has been familiar to all chemists for nearly a hundred years. »

Le second rapport du Comité permanent international des Poids atomiques [6] comprenait des tables similaires. Il citait également une lettre circulaire priant les membres de ce Comité de dire s'ils préféraient les tables basées sur oxygène = 16, hydrogène = 1, ou s'il devait être fait mention des deux, ainsi qu'on l'avait fait jusqu'à ce moment.

Cette controverse dura plusieurs années et fut finalement résolue lors d'un Congrès international de Chimie appliquée et analytique, lorsque le Président concilia les deux partis grâce à un artifice. Il se mit au tableau noir et, représentant la formule comme une équation mathématique, il demanda qui était en faveur de

$$\text{oxygène} = 0 \text{ (zéro)} = 16.$$

Cette ruse fut couronnée de succès et l'oxygène-16 fut adopté comme base pour les tables de poids atomiques.

En 1911, l'Association internationale des Sociétés chimiques était créée à Paris. La première décision, prise sous la présidence de Sir WILLIAM RAMSAY, fut d'inviter le Comité permanent international des Poids atomiques à devenir un comité de travail de cette Association. Ses tâches consistaient à adapter les méthodes modernes d'évaluation des poids atomiques et à publier des nouvelles tables au fur et à mesure de leur mise à jour. L'industriel belge SOLVAY mit à la disposition de l'Association des bureaux et laboratoires afin de procurer d'excellentes conditions de travail. Cette aide matérielle est certainement l'un des facteurs de la haute renommée dont jouissait l'Association des Sociétés chimiques.

Dès la guerre terminée, les Présidents des Associations des Industries chimiques de Grande-Bretagne et de France, avec l'aide de collègues américains, tentèrent de faire renaître une coopération internationale. L'union internationale de Chimie pure et appliquée, telle que nous la connaissons aujourd'hui, fut fondée en novembre 1918 à Londres, grâce à l'action conjointe de Sir WILLIAM POPE, Président alors en fonctions de la Society of Chemical Industry, et PAUL KESTNER, Président de la Société de Chimie industrielle, et fut officiellement constituée lors d'une réunion à Rome en juin 1920. L'une de ses premières tâches fut de créer une nouvelle Commission des Poids atomiques.

La découverte des isotopes, résultant en particulier des recherches de RUTHERFORD et ASHTON, conduisit à son tour à la constatation par GLAUQUE et ses collaborateurs que l'oxygène est un mélange de différents isotopes. C'est pourquoi les physiciens commencèrent à prendre l'isotope pur de l'oxygène-16 comme base, alors que les chimistes continuèrent à se référer au mélange de l'oxygène. Ainsi, dès 1920, nous avons deux tables de poids atomiques différant considérablement dans leurs valeurs. Le problème devint urgent lorsque l'on découvrit que l'oxygène naturel est un mélange dont la teneur en isotopes varie selon sa provenance, de sorte que toute la table des poids atomiques chimiques est fondée sur une base instable.

Parmi d'autres suggestions pour une nouvelle base des tables de poids atomiques, il fut proposé l'isotope pur du fluor.

Chacun fut soulagé lorsque la Commission des Poids atomiques de l'IUPAC, présidée par le Dr E. WICHERS – National Bureau of Standards, Washington, et également Président en son temps de la Section de Chimie minérale de l'IUPAC –, proposa une meilleure solution. Le rapport ci-après du Dr WICHERS vous relate la suite de cet historique :

Il y a déjà quelques années que la Commission des Poids atomiques de cette Union étudie la possibilité d'établir une seule échelle des poids atomiques et de masses nucléidiques remplaçant les deux échelles employées actuellement, l'une par les chimistes, l'autre par les physiciens. Lors de sa réunion à Munich, en août 1959, durant la 20<sup>e</sup> Conférence de l'Union, la Commission est arrivée à une solution de ce problème et elle a recommandé l'adoption d'une échelle basée sur 12 en tant que masse atomique (nucléidique) de l'isotope naturel dominant du carbone, le carbone-12. Cette recommandation a été faite à la condition que l'échelle du carbone-12 soit également adoptée par l'Union de Physique à la place de l'échelle, basée sur l'oxygène-16, employée actuellement. Le texte de la recommandation de la Commission et de certains commentaires est le suivant :

« La Commission des Poids atomiques, avec l'approbation du Comité de Section de la Section de Chimie minérale, recommande au Conseil de l'Union l'adoption d'une nouvelle échelle des poids atomiques, en remplacement de l'échelle employée habituellement et basée sur le nombre entier 16 comme poids atomique de l'oxygène naturel. La nouvelle échelle proposée est basée sur le nombre entier 12 comme poids atomique (masse nucléidique) de l'isotope naturel dominant du carbone, le carbone-12. Cette recommandation est faite à condition que l'Union internationale de Physique pure et appliquée recommande l'adoption de la même échelle, en remplacement de l'échelle des masses nucléidiques employée habituellement par les physiciens et basée sur le nombre entier 16 comme masse nucléidique de l'isotope naturel dominant de l'oxygène, l'oxygène-16. Si l'Union de Physique adopte une telle mesure lors de son Assemblée générale en 1960, notre Commission propose qu'une décision définitive soit prise par l'Union de Chimie lors de sa Conférence en 1961. A cette époque, et sous réserve d'approbation par le Conseil, notre Commission publiera une table des poids atomiques basée sur l'échelle du carbone-12. En attendant, la Commission suggère de n'apporter aucun changement aux poids atomiques parus dans les Comptes Rendus de la Conférence de Paris en 1957.

» La Commission s'est occupée durant plusieurs années du problème de corriger l'ambiguïté de l'échelle chimique des poids atomiques, résultant d'une légère variation dans la composition isotopique de l'oxygène naturel. Nous espérons en même temps être à même de proposer aux chimistes et aux physiciens une seule échelle des poids atomiques et des masses nucléidiques, afin d'éviter la confusion qui se produit parfois par l'usage indistinct des deux échelles existantes. Il devint évident qu'une nouvelle échelle, pour pouvoir être acceptée par les chimistes, ne devait pas entraîner de trop grandes modifications dans les valeurs des poids atomiques figurant sur l'échelle actuelle, c'est-à-dire des changements si possible inférieurs à 1 partie pour 10000. L'échelle du carbone-12 baisserait en fait les valeurs acceptées pour les poids atomiques de 0,43 partie pour 10000. Afin d'être acceptée par les physiciens, une nouvelle échelle ne devrait théoriquement présenter aucun inconvénient par rapport à l'échelle physique actuelle et devrait permettre la comparaison des masses nucléidiques par des mesures physiques.

» La Commission pense que l'échelle proposée, basée sur le carbone-12, remplit toutes les conditions requises. Nous admettons que le carbone-12 n'est pas satisfaisant, au point de vue pratique, pour la détermination des poids atomiques par les techniques traditionnelles du chimiste. Cependant, nous n'estimons pas que ce soit une objection majeure à l'adoption de la

nouvelle échelle, d'autant plus que les poids atomiques des éléments pouvant servir de références pour la détermination chimique des poids atomiques ont été définis d'une manière très précise – par des moyens physiques – par rapport au poids atomique (masse nucléidique) du carbone-12.

» Nous pensons qu'il serait peu sage d'établir une nouvelle table des poids atomiques si elle ne devait remplacer les deux échelles en usage actuellement. C'est pourquoi nous proposons l'adoption de l'échelle carbone-12, uniquement à condition qu'une action identique soit prise d'avance par l'Union de Physique.

» Si le Conseil accueille favorablement notre recommandation, nous suggérerons alors que des démarches appropriées soient entreprises auprès des organismes nationaux dans tous les pays membres afin de les prier de nous faire parvenir leur approbation ou leurs objections, concernant ces propositions, dans les deux ans qui s'écouleront jusqu'à la prochaine Conférence. Si nécessaire, la Commission préparera une lettre à l'intention des organismes nationaux adhérents, contenant les références aux textes publiés et relatant l'étude approfondie à laquelle nous avons procédé au sujet de la question de cette échelle unifiée.

» En vue de connaître la réaction probable des chimistes au sujet du changement envisagé, la Commission a sollicité l'avis des organismes nationaux de Grande-Bretagne et des Etats-Unis d'Amérique. L'approbation de ces deux pays prouve que la Commission n'a pas agi d'une manière hâtive ou malavisée en recommandant à l'Union un changement d'une telle importance dans la pratique scientifique. »

Lors de son Assemblée générale en 1960, l'Union internationale de Physique pure et appliquée a effectivement recommandé l'adoption de cette échelle en remplacement de celle basée sur l'oxygène-16. L'accord préalable de l'IUPAP étant obtenu, les organismes adhérents furent à leur tour consultés. Seul, un pays émit des objections, préférant conserver la tradition établie jusqu'à ce jour.

Ces deux conditions essentielles avant tout changement sont ainsi remplies et il est donc maintenant nécessaire que le Conseil de l'IUPAC prenne, lors de son Assemblée générale à Montréal, une décision définitive à ce sujet.

#### *Références*

- [1] J. Amer. Chem. Soc. 22, N° 2, 79; 1900.
- [2] Berichte der Deutschen Chem. Gesellschaft 30, 2955; 1897.
- [3] Berichte 33, 1847–1883; 1900.
- [4] Berichte 34, 4353; 1901.
- [5] Berichte 37, 7; 1904.
- [6] Berichte 38, 7; 1905.



## Change in the Basis for Atomic Weight Tables

A proposed new atomic weights scale based on the pure isotope carbon-12 will be submitted to the Council of IUPAC for final decision at the Conference in Montreal in August 1961 (see Item 15 on the Agenda). This step is of world-wide importance and is a striking example of the sort of problem which can only be solved by an international organization of good repute and wide influence. It has resulted from close co-operation between various disciplines, within the framework of a commission of IUPAC.

The following survey of the history of the subject is given to facilitate the discussions at Montreal and to assist the delegates who will have to vote on the issue. It is also intended to draw attention to the outstanding importance of this matter.

### *Historical Survey*

The British physicist and chemist JOHN DALTON (1766–1844) published one of the first tables of atomic weights, based on his theory. He chose hydrogen as a unit because it had the smallest atomic weight. Both A. AVOGADRO and S. CANNIZZARO accepted DALTON's theory and his atomic weight scale.

J. J. BERZELIUS (1799–1848), who carefully studied the ratio of atomic weights of the various elements, chose the arbitrary number 100 for oxygen. He pointed out that oxygen was a good reference substance, having the great advantage of combining with most elements, particularly in inorganic chemistry, so that molecular and atomic weights could be measured directly. The great drawback of hydrogen as a reference substance, on the other hand, was that it combined directly with a limited number of elements only. Thus, in most cases, the atomic weight must still be evaluated in comparison with oxygen. As the ratio oxygen to hydrogen could never be determined with absolute accuracy, errors in this ratio would be carried over into all other values for atomic weights.

DALTON's atomic weight scale was still in use at the time of the rapid rise of organic chemistry in the middle of the last century, and apparently no objections were voiced, particularly as the disadvantage of hydrogen mentioned above does not apply to organic chemistry. In 1883 LOTHAR MEYER and K. SEUBERT used a new technique and arrived at the ratio of oxygen to hydrogen as 15.96 to 1, which was later corrected to 15.879 to 1.

In the seventh annual report of the United States Committee on Atomic Weights [1] F. W. CLARKE, from the USA Geological Survey in Washington, published two sets of tables of atomic weights, one based on hydrogen = 1 and the other on oxygen = 16.

It was the Deutsche Chemische Gesellschaft in Berlin which took the initiative in dealing with this subject on an international scale. At the proposal of EMIL FISCHER a working committee was appointed under the chairmanship of H. LANDOLT, with WILLIAM OSTWALD and K. SEUBERT as members. The terms of reference were: to contact chemical societies and other similar institutions in all countries in order to create an international commission to resolve the chaotic situation with regard to atomic weights, either by correspondence or through personal connections [2]. This represents one of the first steps towards international co-operation in the field of theoretical chemistry. (In the applied field, long before that time, the Belgian sugar chemists had made attempts to obtain international agreement on several problems, such as evaluation of sugar content, for instance.)



This German commission approached all chemical societies and other interested organizations and some individual chemists in an attempt to find out whether atomic weights should be based on hydrogen or oxygen as a unit. Some 50 replies were received. A few extracts from this correspondence are given below as an illustration of the climate of opinion and cooperation at the beginning of the 20th century.

"I have the honour to announce to you the appointment by the American Academy of Arts and Sciences, an institution which has always taken the greatest interest in chemistry, of a committee of three to act with the Committee on Atomic Weights of the German Chemical Society. The members of this Committee are Dr. W. GIBBS, I. REMSEN and T. W. RICHARDS."

"I am decidedly of the opinion that it is best to take oxygen = 16 as more advantageous."

"I think it is best to give the atomic weights with all the decimals as determined by the best authorities."

"I think that if any prominent chemist would undertake to give a yearly account of progress in the determination of atomic weights with criticisms the arrangement would be most simple and convenient."

"Mir ist in erster Linie daran gelegen, dass die geplante Einigung überhaupt zustande kommt. Sollte also eine Mehrheit für die Grundlage  $H = 1$  ergeben, so würde mich dieser meinerseits nicht entgegenstellen."

On 6 June 1900, in the second report of the German Atomic Weights Commission [3], the results of this survey were given as follows:

40 chemists were in favour of oxygen = 16  
7 chemists were in favour of hydrogen = 1  
2 undecided

In the third report, however, published on 4 December 1901 [4], the result of a new vote was:

106 chemists in favour of hydrogen = 1  
78 chemists in favour of oxygen = 16

It is interesting to note that A. VON BAYER and G. VOLHARDT expressed doubt as to whether a majority opinion could be accepted as final in such theoretical matters.

It was found that this large body, comprising about 200 chemists, was not in a position to attain conclusive results, and it was unanimously agreed that a small standing committee should be set up, to whom the continuous evaluation of atomic weights could be entrusted. It was suggested that the tables be revised only every five years in the interests of stability and continuity. F. W. CLARKE, from the USA, was elected to the Chair of this International Standing Committee on Atomic Weights. T. E. THORPE (from the United Kingdom) and K. SEUBERT (Germany) were co-opted members and were later joined by H. MOISSAN from Paris.

The first atomic weight tables issued by this Committee [5] were once more based on a compromise in that two sets were provided, one based on hydrogen = 1 and the other on oxygen = 16. F. W. CLARKE was apparently in favour of hydrogen = 1 as the following excerpt shows:

"I favour the unit  $H = 1$ , for it applies well to both atomic weights and gaseous densities. For teaching purposes it is simpler than  $O = 16$ , and I believe it to be equally convenient with  $O = 16$ . Any standard other than unity leads ultimately to complication, and the hydrogen unit has been familiar to all chemists for nearly a hundred years."

The second report of the International Standing Committee on Atomic

Weights [6] included similar tables and gave details of a circular letter asking whether members preferred tables based on oxygen = 16, hydrogen = 1 or whether both should be given, as had been done up to that time.

This controversy continued for several years and was only finally resolved at an International Congress on Applied and Analytical Chemistry when the Chairman reconciled the two sides by a trick. He went to the blackboard and, representing the formula as a mathematical equation, asked who was in favour of

$$\text{oxygen} = 0 \text{ (zero)} = 16.$$

This ruse was successful, and oxygen-16 was adopted as the basis for atomic weight tables.

In 1911 the International Association of all Chemical Societies was created in Paris. The first decision, taken under the chairmanship of Sir WILLIAM RAMSAY, was to invite the International Standing Committee on Atomic Weights to become a working committee of the Association. The terms of reference were to adapt modern methods of evaluation of atomic weights and to publish successively up-to-date tables of atomic weights. The Belgian industrialist SOLVAY provided the Association with headquarters in Brussels, including offices and laboratory facilities, in order to create good working conditions. This material assistance is one of the causes of the high standing of the Association of Chemical Societies and Chemical Industry.

After the war, the Presidents of the Associations of Chemical Industries, with the help of American colleagues, made first attempts to revive interest in international co-operation. The International Union of Pure and Applied Chemistry, as we know it today, was founded in London in November 1918, due to the joint action of Sir WILLIAM POPE, at that time President of the Society of Chemical Industry, and PAUL KESTNER, President of the Société de Chimie industrielle, and was officially established at a meeting in Rome in June 1920. One of its first tasks was to create a new Commission on Atomic Weights.

The discovery of isotopes, resulting from the work particularly of RUTHERFORD and ASHTON, led in its turn to the discovery by GIAUQUE and his collaborators that oxygen is a mixture of various isotopes. Physicists therefore began to take the pure isotope oxygen-16 as a basis, whereas chemists based their tables on natural oxygen. Thus, from 1920 onwards, we have two sets of atomic weights differing considerably in value. The matter became urgent when natural oxygen was found to be a variable mixture of isotopes, so that the whole table of chemical atomic weights is based on a variable factor.

Among other suggestions for a new basis for atomic weight tables was the pure isotope fluorine.

It was a great relief to everybody when the Atomic Weights Commission of IUPAC—President: Dr. E. WICHERS, National Bureau of Standards, Washington 25, DC, and sometime President of the Inorganic Chemistry Section of IUPAC—proposed a better solution. Dr. WICHERS' report, which follows, will give the rest of this history:

For some years the Commission on Atomic Weights of this Union has been studying the possibility of establishing a single scale of atomic weights and nuclidic masses which would replace the two scales now in use, one by chemists and the other by physicists. At its meeting in Munich 1959 August, during the 20th Conference of the Union, the Commission reached a conclusion on this matter and recommended the adoption of a scale based on 12 as the atomic (nuclidic) mass of the dominant natural isotope of carbon, carbon-12. This recommendation was made subject to the provision that the carbon-12 scale will also be adopted by the Union of Physics in place of the

presently used oxygen-16 scale. The text of the Commission's recommendation and of certain explanatory comments, is as follows:

"The Commission on Atomic Weights, with the approval of the Section Committee of the Section of Inorganic Chemistry, recommends to the Council of the Union the adoption of a new scale of atomic weights in replacement of the currently used scale, based on the whole number 16 as the atomic weight of natural oxygen. The recommended new scale is based on the whole number 12 as the atomic weight (nuclidic mass) of the dominant natural isotope of carbon, carbon-12. This recommendation is made subject to the provision that action is taken by the International Union of Pure and Applied Physics to recommend the adoption of the same scale in replacement of the scale of nuclidic masses currently used by physicists, which is based on the whole number 16 as the nuclidic mass of the dominant natural isotope of oxygen, oxygen-16. If the Union of Physics takes such action at its General Conference in 1960, our Commission proposes that final action be taken by the Union of Chemistry at its Conference in 1961. At that time, and subject to approval by the Council, our Commission would publish a table of atomic weights based on the carbon-12 scale. Pending such action, the Commission proposes to make no changes in the atomic weights as published in the *Comptes Rendus* of the Paris Conference in 1957.

The Commission has concerned itself for several years with the problem of correcting the ambiguity of the chemical scale of atomic weights that results from a slight variation in the isotopic composition of natural oxygen. At the same time we hoped it might be possible to propose a single scale that would be used by both chemists and physicists for the expression of atomic weights and nuclidic masses, and thus to avoid the confusion that sometimes occurs through the indiscriminate use of the two existing scales. It became apparent that a new scale, to be acceptable to chemists, should result in minimal changes in the values of atomic weights as based on the present chemical scale, changes preferably smaller than 1 part in 10,000. The carbon-12 scale would lower presently accepted values for atomic weights by 0.43 part in 10,000.

For acceptability to physicists a new scale should have no logical disadvantages as compared with the present physical scale and should be operationally satisfactory for the comparison of nuclidic masses by physical measurements.

The Commission believes that the proposed carbon-12 scale meets the foregoing requirements. We concede that carbon-12 is not operationally satisfactory for the determination of atomic weights by the traditional techniques of the chemist. However, we do not consider this to be a significant objection to the adoption of the new scale, inasmuch as the atomic weight (nuclidic mass) of carbon-12 has been related, by physical means, with very high accuracy, to the atomic weights of elements that can be used as reference species for the chemical determination of atomic weights.

We consider that it would be unwise to establish a new scale of atomic weights unless such a scale will supersede the two scales now in use. For this reason we propose the adoption of the carbon-12 scale only if and when the anticipated identical action is taken by the Union of Physics.

If the Council takes favorable action on our recommendation, we recommend further that appropriate steps be taken to bring to the attention of the adhering bodies in all member countries the proposals herein reported, for endorsement or objection during the two-year period before the next Conference. The Commission will, if desired, prepare a letter to be addressed to the national adhering bodies which will contain references to published material reporting in detail our consideration of the problem of a unified scale."



Please note that in order to ascertain the probable attitude of chemists to the proposed change the Commission solicited the views of the adhering bodies in two member countries, Great Britain and the United States of America. The approval of the proposal by these two countries can be regarded as indicating that the Commission did not act in a hasty or ill-advised manner in recommending to the Union a change in scientific practice of such far-reaching importance.

At its General Assembly in 1960, the International Union of Pure and Applied Physics recommended the adoption of this scale in place of that based on oxygen-16. The agreement of IUPAP having been obtained, the member countries were consulted in their turn. Only one country objected, preferring to keep to established practice.

Thus the two conditions which had to be fulfilled before a change could be made have been satisfied, and it is now necessary that the Council of IUPAC should take a final decision on this subject at its meeting during the Conference in Montreal.

#### *References*

- [1] J. Amer. Chem. Soc. 22, No. 2, 79; 1900.
- [2] Berichte der Deutschen Chem. Gesellschaft 30, 2955; 1897.
- [3] Berichte 33, 1847-1883; 1900.
- [4] Berichte 34, 4353; 1901.
- [5] Berichte 37, 7; 1904.
- [6] Berichte 38, 7; 1905.



## THE ORGANISATION OF THE APPLIED CHEMISTRY SECTION

Now that the correspondence on the above subject has been given a different twist by Prof. KLEMM's suggestion, namely that the Section be split into two, it might be appropriate if I added my comments.

First I would like to mention that I also have in the past considered the sub-division of the Section. At one time the idea was to produce two groups representing "Industries" and "Techniques", the latter to accommodate Chemical Engineering. Next came the suggestion that the two groups might be named "Industries" and "Applied Chemical Analysis". That was soon abandoned, however, as several Divisions representing industries have Commissions on analytical methods.

Prof. KLEMM's suggestion introduces three features:

- (1) The splitting of the Applied Chemistry Section.
- (2) The grouping together of some Divisions under "Food and Nutrition" and the remainder under "Industrial Chemistry".
- (3) Discrimination between Divisions by naming some (those forming a new Food and Nutrition Section) to be financed by the Union (as with "Pure" Sections), and those forming the Industrial Chemistry Section to be self-supporting.

I think there might be considerable agreement with suggestion (1), if only to make the Section more manageable. I would expect (2) might also be acceptable, and in support of it I would mention that the Food and Nutrition Section could be regarded as the Section which provides the chemical counterpart to WHO and FAO. I find it difficult to accept suggestion (3) in its present form and before discussing it in detail would like to submit the following comments on three ways by which Industry may support the Union.

Industry may make monetary contributions (a) directly to the Union funds, (b) to the appropriate Divisions representing the different industries, and (c) by firms paying the travelling expenses of "Associate" members in the various Divisions.

Method (a) has already been adopted and contributions are being received by the Union so I suspect that method (b) would not now be appropriate, if indeed it would ever be desirable. It might result in industrial firms specifying that their contributions should be allocated to certain Divisions rather than be placed at the disposal of the whole Union.

Increasing the proportion of Associate Members, supported by Industry (method [c]), may possibly be an acceptable procedure, provided all Divisions in the Applied Section or Sections are treated similarly. This differs from Prof. KLEMM's suggestion, as he would adopt this procedure for only part of the Applied Section—namely that which he terms the Industrial Chemistry Section. Such discrimination between the Divisions I consider would be subject to serious criticism. For example, how can one explain to the Paper, Pulp and Board Industry that they cannot have Titular Members on their Division, while the Food Industry may have them on the Food Additives Commission?

I submit therefore that equal treatment of all Divisions is to be recommended and during a period of financial stringency (when supplementary assistance to that yielded by method [a] is needed) the number of Associate

Members be increased in proportion to the Titular Members in each Division. Such a procedure does not discriminate between the Divisions (although it may be criticised that it favours the "Pure" in preference to the "Applied" Sections). Furthermore, by having a limited number of Titular Members on all committees, one might avoid the danger of having committees entirely of representatives of large commercial firms.

This then is my modification of Prof. KLEMM's suggestion, and it brings me to the scheme I outlined some time ago ("Bulletin" No. 11, pages 30-32). In that connection I draw attention to the following points:

- (i) The scheme would not preclude the separation of part of the Applied Chemistry Section to form a "Food and Nutrition Section".
- (ii) The appointment of an Assistant Secretary would be less necessary if the Section were divided into two—and in any case the co-ordinating of International Congresses would, I should imagine, be better undertaken by the Secretary General.
- (iii) A mechanism is provided whereby Divisions may become "non-active" when there is no important function for them to perform or when finances will not permit. Alternatively Divisions may be informed in turn that the frequency of their meetings needs to be limited. Indeed such action has already been taken by informing both the "Oils and Fats" and the "Fermentation" Divisions that there is no available financial support for them in 1961. The above methods provide a means of balancing activity with available funds.
- (iv) The appointment of Associate Members as representatives of existing organizations throughout the world would bring industry into much closer contact with the Union without incurring extra expense. Such representatives might be appointed as members of a Section Committee, Division Committees or Commissions.

In case the above comments are required to be considered in the form of definite proposals, I submit the following:

- (1) Monetary contributions from Industry should not be requested to support the activities of individual Divisions while the Union itself is receiving contributions from that source for general Union funds.
- (2) The Divisions of the Applied Chemistry Section (whether or not split into two Sections) should not be treated differently by the Union from a financial point of view.
- (3) The Applied Chemistry Section be split into two Sections to be named "Food and Nutrition Section" and "Industrial Chemistry Section" provided proposition No. (2) is agreed upon.  
(If proposition [2] is agreed, then proposition No. [3] would not result in any financial advantage to the Union. It might therefore be left in abeyance for the present.)
- (4) Financial support from Industry, in addition to that by direct contribution to Union funds, should only be sought when absolutely necessary and then only by the increased use of "Associate" Members (who are not authorized to draw funds from the Union).
- (5) In accordance with proposition (2), Divisions should all include Titular Members, but the relative proportion of such members to Associate Members may be varied according to the financial situation.

- (6) The frequency of meetings of Divisions may be varied in accordance with the financial situation and with the activity of the different Divisions.
- (7) The general form of the Applied Chemistry Section (or Sections if subdivided into two as in proposition [3]) should be in general principle as outlined in "Bulletin" No. 11, pages 30-32. This does not include the question of an Assistant Secretary or agreement as to the number of Titular Members in each Division.

J. H. BUSHILL

## DUTIES OF OFFICERS OF THE UNION

A letter from the new Secretary of the Atomic Weights Commission, in which he asked for guidance and details about his duties, led the Secretary-General to ask the Bureau to elaborate general rules of conduct. The Bureau in Leningrad therefore—

“resolved: that an *ad hoc* Committee, consisting of Prof. VERKADE (Chairman), Profs. EMELÉUS and KUHN should be established to formulate general rules for the conduct of business of the Union, particularly those affecting all Secretaries. At the request of Prof. VERKADE, the Secretary-General should *ex officio* join this Committee.

Prof. EMELÉUS suggested that these rules should also include instructions for Presidents of Sections, Divisions and Commissions.”

The draft rules were based on the Statutes and on the instructions given to the officers of the Union by the President W. ALBERT NOYES, Jr., when he took office.

A draft of this document was studied by the Executive Committee at its recent meeting in Basle and was then referred to the Meeting of Section Presidents in London in June. The following version takes these various views into account.

### *Tasks of the various officers of the Union* (\* = as stipulated in the Statutes)

#### *I. President*

- \* (1) to submit to the Council a report on the general state of the Union to be sent 4 months before the Conference to the Bureau and member countries, in English and in French
- \* (2) to authorise the expenditure of IUPAC
- \* (3) to represent the Union on all civil and legal occasions or to delegate his powers to a member of Council or to the Secretary-General
- (4) to ensure contact with neighbour Unions and other international Bodies and to designate the IUPAC representative within these Unions

#### *II. Treasurer*

- \* (1) to submit to the Council the accounts for the past financial years and the proposed budget to be sent 4 months before the Conference to the Bureau and member countries, in English and in French
- \* (2) to administer the expenditure of IUPAC
- (3) to make proposals with regard to investments to the Executive Committee for transmission to the Bureau for decision
- (4) to submit the accounts of IUPAC to official auditors before the Conference
- (5) to request from adhering bodies the payment of the annual dues in December for the year to come



- |   |                    |
|---|--------------------|
| (6) to thank the adhering bodies which have already paid their annual dues and to send a reminder to the others |                    |
| (7) to send claim forms to Secretaries of Sections, Divisions and Commissions                                   | before the meeting |
| (8) to countersign these claim forms and forward them to the UBS for payment                                    | after the meeting  |

### III. Secretary-General

- |  |  |
|--|--|
| * (1) to draw up the agenda for the meetings of the Council  | to be sent 4 months before the Conference to the Bureau and member countries, in English and in French |
| (2) to remind the adhering bodies that proposals for the Agenda must be circulated 6 months before the Conference  |  |
| * (3) to take charge of the records and to be responsible for carrying out the decisions taken by the Council and the Bureau   |  |
| (4) to take a share in the organization of the Conference and Congress   |  |
| (5) to draft a report to ICSU on the activities of IUPAC<br>After having taken the advice of the Treasurer:  | June   |
| (6) to present to ICSU a budget 3 years in advance   | January  |
| (7) to establish a provisional budget for the next year  | September  |
| (8) to establish the definitive budget for the next year   | December   |
| (9) to keep the list of Titular Members up-to-date   |  |
| (10) to ask adhering bodies for their agreement on the suggested Titular Members and to inform the Presidents and Secretaries of Sections, Divisions and Commissions accordingly |  |
| (11) to draft minutes where appropriate and to circulate them to Bureau members and adhering bodies  |  |
| (12) to draft the Comptes Rendus and the Information Bulletin and to send them to the addresses on the mailing list  |  |
| (13) to draw up the agenda for the Executive Committee, Bureau and Council meetings and to organize these meetings   |  |
| (14) to ensure contact between adhering bodies, Sections, Divisions, Commissions and the Executive Committee, Bureau and Council   |  |
| (15) to request from adhering bodies the list of delegates to the Council  | 4 months before the Conference   |
| (16) to submit to adhering bodies the proposals which are subsequently to be submitted to the Bureau for approval  |  |

- (17) to inform ICSU of the meetings of the Joint Commission on Applied Radioactivity and to request the necessary funds for that purpose
- (18) after having taken care of all details communicated by Sections and Commissions, to establish the definitive programme of the Conference and to inform the Organizing Committee of the Congress and all Titular Members accordingly at least 3 months before the Conference
- (19) to invite appropriate Universities and Research Institutes to designate a delegate to the Congress 2 months before the Congress
- (20) to invite to the Conference the President and Secretary of ICSU and of some neighbour Unions 2 months before the Conference
- (21) to inform the Council Members of the procedure to be followed with regard to votes
- (22) to welcome new Titular Members and to send them all necessary documents concerning IUPAC
- (23) to distribute the publications of the Union to Bureau members and the member countries

#### *IV. Section Presidents*

On behalf of their Section Committee:

- \* (1) to organize colloquia, discussions and other meetings considered useful for the development of the scientific or technical field covered by the Section
- \* (2) to propose to the Bureau and Council the creation or dissolution of Divisions, Commissions or Sub-Commissions attached to the Section
- \* (3) to give directions to the Commissions, to supervise their work and, if the need arises, to resolve any difficulties occurring within these organizations
- (4) to give to the Secretary-General a list of the proposed meetings and symposia or other commitments (dates and places) as a basis for the establishment of the budget by the appropriate authorities by the 1st September each year; in a Conference year, this is to be done at a Section Committee meeting at the Conference
- (5) to ask the Division and Commission Presidents to submit the necessary information and reports so as to allow him to prepare his report to the Council and the Bureau 4 months before the Conference and the Bureau meetings
- \* (6) to present each year to the Bureau of the Union a written report on the activities of the Section Committee, the Divisions or Sub-Sections, the Commissions and Sub-Commissions of the Section

- (7) to prepare well in advance, in collaboration with the Section Committee, for the election of new officers of the Section and to discuss problems of geographical distribution with the Bureau
- \* (8) to obtain the approval of the Council, the Bureau or the President, for any decision requiring finances from IUPAC
- (9) to draft a report on the activities of the Section since the last Conference 2 months before the Conference
- (10) to ensure contact between Sections and the Executive Committee, Bureau and Council
- (11) to sign the Titular Members' claim forms and forward them to the Honorary Treasurer for approval after any meeting
- (12) to appoint representatives to meetings, if this task has been delegated to the Section Presidents
- (13) to inform the Secretary-General regarding meetings of the whole section 3 months before the Conference
- (14) to give the Editor advance information about, and approximate length of, any forthcoming reports or other material for publication from their Sections
- (15) to recommend to the Section Committee a Section Secretary

#### *V. Section Secretaries*

- \* (1) to collect together the reports and the requests of the Divisions or Sub-Sections, Commissions and Sub-Commissions
- \* (2) to ensure the circulation of documents
- \* (3) to draw up the agenda for meetings and send them to the members of Sections at least 4 months in advance
- \* (4) to fulfil the usual functions of a secretariat in co-operation with the Secretary-General and the Honorary Treasurer
- (5) to draft the minutes of the Section meetings and the Section Committee meetings
- (6) to assist the Section President in preparing his reports, the agenda and other activities
- (7) to inform the Editorial Board about the publication of Symposia or reports of Commissions and Divisions

#### *VI. Commission Presidents*

- \* (1) to present to the Section President a written report on the Commission's activities, which shall state the results obtained and indicate the programme of work to be undertaken during the following year at least 3 months before the Bureau meetings
- \* (2) to convene their Commissions at suitable intervals according to the work to be done

\* (3) to obtain the approval of the Section President for supplementary meetings which appear desirable

(4) to prepare a report for the Section President on the activities of the Commission, which shall serve as a basis for the Section President's report

after the Conference

(5) to assist the Section President in preparing the agenda for meetings and other activities

(6) to prepare for meetings, in collaboration with the Secretaries, and to preside at them

(7) to ensure that the Commissions fulfil their tasks in the most efficient way

(8) to prepare well in advance for the election of new officers and members of their Commissions

### VII. Commission Secretaries

(1) to distribute claim forms to the Titular Members for signature and forward them to the Section President for endorsement

during the meetings

(2) to keep up-to-date the list of the Titular Members of their Commissions and to let the Secretary-General know the following details: name, first name, address, title, present position, beginning and end of membership

(3) to ask the Secretary-General to request the agreement of member countries for all new Titular Members

after any election

(4) to prepare definitive reports for printing and worldwide distribution, in conjunction with the Editorial Board

Subject to the structure of the Applied Chemistry Section remaining as at present, the following rules would apply to Division Presidents and Secretaries and Commission Presidents and Secretaries in that Section.

*Addendum for the special case of the Applied Chemistry Section, which consists of Divisions to which Commissions are attached*

### VIII. Division Presidents (Applied Chemistry Section)

(1) to present to the Section President a written report on the activities of their Division; each report shall include reports from Commissions attached to the Division and also indicate the programme of work for the following year

at least 3 months before the Bureau meetings

(2) to convene their Division at suitable intervals according to the programme

(3) to obtain the approval of the Section President for supplementary meetings which appear desirable

(4) to prepare, for the Section President, a report on the activities of the Division, which shall serve as a basis for the Section President's report

before the Conference



- (5) to assist the Section President in preparing the Agenda and other activities
- (6) to make the necessary arrangements for meetings (in collaboration with the Division Secretary) and to preside at them
- (7) to ensure that the Division fulfils its tasks in the most effective way

*IX. Division Secretaries (Applied Chemistry Section)*

- (1) to collect together the reports and requests from the Commissions and Sub-Commissions
- (2) to ensure the circulation of documents
- (3) to draw up the agenda for meetings and send them to the members of the Division
- (4) to fulfil the usual functions of a secretariat in co-operation with the Secretary of the Section
- (5) to draft the minutes of the Division meetings and Division Committee meetings
- (6) to assist the Division President in preparing his report, the agenda and other activities
- (7) to inform the Editorial Board, through the Section Secretary, of impending requests for publication of Symposia or reports of Commissions

*X. Commission Presidents (Applied Chemistry Section, when the Commission is attached to a Division)*

The duties are identical with those of Presidents of Commission attached directly to a Section Committee, except that all reports, etc., are prepared for the Division President.

*XI. Commission Secretaries (Applied Chemistry Section, when the Commission is attached to a Division)*

The duties are identical with those of Secretaries of Commissions attached directly to a Section Committee, except that reference to Officers of the Union is made through the Section Secretary.

## RESOLUTIONS

The Section President, at their meeting in London on June 26th, 1961 passed the following resolutions:

1. That Section Presidents should have the power to appoint their own Section Secretaries.
2. That a future Section President should serve for two years as Vice-President before taking office.

# CALENDAR

1961

## July

- |       |  |                          |
|-------|--|--------------------------|
| 3- 7  | 3rd International Congress of Dietetics (British Dietetic Association, 251 Brompton Road, London S.W.3/UK)   | London                   |
| 10-14 | 4th Congress of the International Diabetes Federation (Dr. B. RILLIER, Policlinique de Médecine, 24, rue Micheli-du-Crest, Geneva/Switzerland)   | Geneva                   |
| 18-21 | International Symposium on Inorganic Polymers (Chemical Society, Burlington House, London W.1/UK)  | Nottingham               |
| 26-30 | XI <sup>e</sup> réunion annuelle de la Société de Chimie physique - L'acide désoxyribonucléique (ADN), structure, synthèse et fonction - (Prof. G. EMSCHWILLER, 10, rue Vauquelin, Paris-5 <sup>e</sup> /France) | Col de Voza/<br>Chamonix |

## July-August

- |       |   |          |
|-------|---|----------|
| 27- 1 | International Symposium on Macromolecular Chemistry (Dr. H. L. WILLIAMS, Polymer Corporation Ltd., Sarnia/Ontario/Canada) | Montreal |
|-------|---|----------|

## August

- |      |   |          |
|------|---|----------|
| 2- 5 | XXIst Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland)   | Montreal |
| 6-12 | XVIIIth International Congress of Pure and Applied Chemistry (Organizing Committee, XVIIIth International Congress of Pure and Applied Chemistry, National Research Council, Ottawa/Canada) | Montreal |
| 7-11 | Symposium on Chemical and Thermodynamic Properties at High Temperatures (R. F. WALKER, High Temperature Reactions Group, National Bureau of Standards, Washington 25 DC/USA)                | Montreal |

## August

- |       |   |                        |
|-------|---|------------------------|
|       | 5th International Congress on Pesticides  | Montreal               |
|       | Symposium on the Chemistry of Wood  | Montreal               |
| 10-16 | 4th General Assembly IUB—5th International Congress of Biochemistry (Prof. R. H. S. THOMPSON, Department of Chemical Pathology, Guy's Hospital Medical School, London S.E.1/UK) | Moscow                 |
| 13-18 | Symposium on Microchemical Techniques (Dr. H. FRANCIS JR., Pennsalt Chemicals Co., P.O.Box 4388, Philadelphia 19, Pa/USA)   | University<br>Park/Pa. |
| 14-17 | International Calorimetry Conference (Dr. J. E. KUNZLER, Bell Telephone Laboratories, Inc., Murray Hill, NJ/USA)  | Ottawa                 |
| 22-55 | 1st International Congress on Pharmacology (Prof. B. UVNÄS, Pharmacology Institute, Karolinska Institutet, Stockholm 60/Sweden)   | Stockholm              |

Symposium on Atmospheric Ozone and General Circulation cosponsored by the International Association of Meteorology and Atmospheric Physics and the World Meteorological Organization (Dr. H. U. DÜTSCH, Carl-Spitteler-Str. 20, Zurich 53/Switzerland)

*August–September*

27– 1 6th International Conference on Co-ordination Chemistry (Dr. S. KIRSCHNER, Department of Chemistry, Wayne State University, Detroit 2, Mich./USA) Detroit

*September*

4– 8 XXI<sup>e</sup> Congrès des Sciences pharmaceutiques (Prof. A. E. VITOLO, Piazza F. Carrara 10, Pise/Italie) Pise

4– 8 140th annual national Meeting of the American Chemical Society—11th National chemical Exposition (J. J. DOHENY, National Chemical Exposition, 86 East Randolph Street, Chicago 1, Ill./USA) Chicago

18–23 Hauptversammlung der Gesellschaft Deutscher Chemiker (Haus der Chemie, Karlstr. 21, Frankfurt/M./Germany) Aachen

*October*

12–14 Chemikertreffen Wien (Verein Österreichischer Chemiker, Eschenbachgasse 9, Wien 1) Wien

*Undecided*

Conference on Radioisotopes in the Biological Sciences (International Atomic Energy Agency, Kärntnerring 11, Vienna 1/Austria) ?  
Symposium on the Use of Radioisotopes in Micro-neurophysiology (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland) Cambridge ?

*November*

Meeting of the Joint Commission on Applied Radioactivity (Dr. H. SELIGMAN, International Atomic Energy Agency, Kärntnerring 11, Vienna 1/Austria) Basle or Strasbourg  
Meeting of the International Abstracting Board (IAB) (Prof. G. BOUTRY, 292, rue St-Martin, Paris-3<sup>e</sup>/France) London

1962

*April*

3– 5 Symposia on 'The Transition State' Sheffield  
'Some Aspects of the Chemistry of Natural Phenols'  
'Reactivity and Structure in Inorganic Chemistry' (The General Secretary, The Chemical Society, Burlington House, Piccadilly, London W.1)

9-12	Feigl Anniversary Symposium, Society for Analytical Chemistry (M. L. RICHARDSON, c/o John & E. Sturge, Ltd., Lifford Chemical Works, Lifford Lane, Kings Norton, Birmingham, 30/UK)	Birmingham
<i>May</i>		
2	14th International Symposium on Crop Protection (Prof. J. VAN DEN BRANDE, Institut agronomique de l'Etat, 233, Coupure Gauche, Ghent/Belgium)	Ghent
<i>June</i>		
4- 8	12th Annual Meeting of the Société de Chimie Physique (Prof. G. EMSCHWILER, Ecole supérieure de Physique et Chimie, 10, rue Vauquelin, Paris-5 <sup>e</sup> )	Paris
11-14	75th Anniversary of the Société chimique de Belgique. Symposium on Organic Chemistry (Comité national de Chimie, Palais des Académies, Brussels/Belgium)	Brussels
25-29	International Conference on Co-ordination Chemistry (Prof. L. G. SILLÉN, Royal Institute of Technology, Kemistvägen 37, Stockholm 70/Sweden)	Stockholm
<i>July</i>		
25-28	Commemoration Symposium of the 50th Anniversary of the discovery by Prof. M. v. LAUE of the diffraction of X-rays by crystals (Prof. F. BOPP, Institut für theoretische Physik der Universität, Geschw.-Scholl-Platz 1, Munich 22/Germany)	Munich
<i>August</i>		
26-29	Symposium on the Chemistry of Natural Products (Prof. F. SORM, Institute of Chemistry, Czechoslovakian Academy of Sciences, Na evicisti 2, Prague 6/Czechoslovakia)	Prague
<i>September</i>		
10-15	Symposium on molecular Structure and Spectroscopy (Prof. S. MIZUSHIMA, 698, 2-chome, Tamagawa-Denenchofu, Setagaya-ku, Tokyo/Japan)	Tokyo
13-14	British Nuclear Energy Conference. Symposium on the Advanced Gas-Cooled Reactor (The Secretary, B.N.E.C., 1-7 Great George Street, London S.W. 1)	London
17-19	International Symposium on Pharmaceutical Products (Prof. A. SOLDI, Società Italiana di Scienze farmaceutiche, Via Giorgio Jan 18, Milan/Italy)	Florence

### 1963

<i>July</i>	XXIIInd Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland)	London
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<i>July</i>	XIXth International Congress of Pure and Applied Chemistry (Organizing Committee, XIXth International Congress of Pure and Applied Chemistry, The Royal Society, Burlington House, Piccadilly, London W. 1/UK)	London
<i>1964</i>		
<i>July</i> 20-25	3rd International Congress on Catalysis (Prof. J. H. DE BOER, Staatsmijnen in Limburg, Central Laboratorium, Geleen/Holland)	Amsterdam
<i>August</i> 4-10	5th International Symposium on the Reactivity of Solids (Prof. G. M. SCHWAB, Sophienstr. 11, Munich/Germany)	Munich
<i>September</i> ?	Symposium on Natural Products (Prof. MUNIO KOTAKE, Suita Kenkyujo, 646, Katayaka Suita, Osaka/Japan)	Japan

### **British National Committee for Chemistry**

*Symposia and Discussion Meetings open to chemists from abroad  
(without sponsorship of IUPAC)*

*1961*

<i>May</i> 30-31	Annual Meeting of the Overseas Section of the Society of Chemical Industry (particulars from the Hon. Secretary, The Overseas Section, Society of Chemical Industry, 14 Belgrave Square, London, S.W.1. Registration fee £10. Early reservation advised)	Scheveningen, The Hague, Holland
<i>May/June</i> 30- 3	Biennial Conference of the Oil and Colour Chemists' Association on 'Physics in Surface Coatings' (registration by 1 April 1961 to the General Secretary, Oil and Colour Chemists' Association, Wax Chandlers' Hall, Gresham Street, London E.C.2)	Torquay, Devon
<i>June/July</i> 21- 1	Biennial International Exhibition and International Plastics Convention (Information from British Plastics, Dorset House, Stanford Street, London S.E.1)	London
<i>June</i> 22	Colloquium on 'Quantitative Estimation of Amino Acids' (arranged by the Biochemical Society, Hon. Sec. Dr. W. J. WHELAN, Lister Institute of Preventive Medicine, Chelsea Bridge Road, London S.W.1)	St. Andrews University, Scotland

<i>July</i> 13	Colloquium on 'The Teaching and Training of Biochemists' (arranged by the Biochemical Society, address as above)	Oxford University
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*September*

28-29	'Oxidation Processes in Chemical Manufacture', Symposium of London Section of the Society of Chemical Industry, 14 Belgrave Square, London S.W.1. 'Recent Developments in Processing Cereals', Food Group of S.C.I.	London
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<i>October</i> 5- 6	Colloquium on 'The Biochemistry and Biophysics of Phospholipids and Sulpholipids' (joint meeting of the British Biophysical Society and the Biochemical Society, address as above)	School of Pharmacy University of London
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1962

<i>April</i> 9-13	6th Congress of the International Society for Fat Research (information from the Society of Chemical Industry, 14 Belgrave Square, London S.W.1)	London
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<i>June</i> 26-28	Symposium on the 'Physics and Chemistry of High Pressures' (information from Society of Chemical Industry)	London
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*September*

18-21	1st International Congress of Food Science and Technology (information from Society of Chemical Industry)	London
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## PROPOSAL FOR ACTION BY IUPAC

By Sir ERIC RIDEAL

It is urged that a Division of Colloid and Surface Chemistry be commissioned in the Section of Physical Chemistry of the International Union of Pure and Applied Chemistry. Colloid and surface Chemistry is an important and rapidly growing portion of the broad and basic science of physical chemistry. This field of knowledge evolved from the efforts of such creative scientists as LAPLACE, KELVIN, GRAHAM, GIBBS, FREUNDLICH, DEVAUX, LANGMUIR, HARDY, HARKINS, FRUMKIN, MCBAIN, HARTLEY and DE BOER. Their investigations as well as those of many others were carried on primarily in the pursuit of knowledge and not as subordinate parts of applied science programmes or of product development efforts. As examples of the present-day breadth of the subject may be cited topics apparently as unrelated as the fundamental aspects of heterogeneous catalysis and the study of the mechanisms responsible for the pharmacological action of the alkaloid drugs. The subject matter of colloid and surface chemistry is so extensive and so many valuable applications are being made in areas throughout physical, biological and medical science that IUPAC would perform a valuable service by sponsoring a suitable Division whose objective would be to foster international action on the many existing problems concerning nomenclature, compilation of tables of physical constants, and standardization of definitions and methods.

Current widespread applications of wetting agents, dispersants and detergents for aqueous systems tend to convey to most chemists, engineers, biologists, and medical investigators the idea that such products and their application are the principal concern and justification of the field of surface chemistry; also that the area of science concerned with surface chemistry is distinct and apart from that concerned with colloid chemistry. Such notions are distortions factually and historically, for both areas are concerned with the same subject matter, but with differences in emphasis. In order to help rectify this common misunderstanding, the American Chemical Society recently changed the name of the former Division of Colloid Chemistry to the Division of Colloid and Surface Chemistry. As a matter of fact, new concepts and new chemical materials are being developed rapidly, which bring the principles and methods of colloid and surface chemistry into more use in non-aqueous systems and into more intimate relation with modern concepts arising in the fields of polymer chemistry and biochemistry; in these directions much growth can be confidently predicted in the years ahead. In order to avoid the short-term point of view and to promote healthy growth in these areas of chemistry, it is urged that the IUPAC commission a Division of Colloid and Surface Chemistry, whose scope should cover all basic aspects of the subject.

A list of present problems necessitating international agreements or conventions in this field would need much discussion among experts and would be too lengthy for presentation here; however, the following problems deserve brief mention because of their obviously essential nature:

(1) The importance of the thermodynamic analysis of surface phenomena was firmly established in the last century by J. WILLARD GIBBS and was more fully elaborated by BAKKER and GUGGENHEIM; it is basic to all theoretical treatments of the subject. Various problems concerned with nomenclature, conventions, symbols, and definitions need international discussion and agreement; some are similar to those arising in the thermodynamic dis-

cussion of bulk matter, others are peculiar to the matter accumulated in thin films at phase boundaries.

(2) Since the publication of the International Critical Tables after World War I, there have been no authoritative compilations of many important physical constants, such as surface tensions, interfacial tensions, specific surface energies, spreading coefficients equilibrium contact angles, heats of immersion, surface potentials, critical micellar concentrations, and specific surface areas of powdered solids. The present situation with respect to these data, which are basic in colloid and surface chemistry, is simply chaotic; many years of effort by international committees will be necessary to establish order and to disseminate in appropriate tables and reports the most reliable numerical constants.

(3) The system of classifying adsorption isotherms into five types as defined by BRUAUER, EMMETT, and TELLER has become widespread; it is desirable that the same significance be given to Type I, Type II, etc., in one country as in another.

(4) The common use of gaseous adsorption methods to measure the specific surface areas of finely-divided solids needs agreement on the methods of obtaining the cross-sectional areas of different adsorbate molecules and on the best available values to be assigned for the cross-sectional areas of adsorbed reference gases, such as nitrogen, argon, water, etc.

(5) There has long been a need for arriving at conventions in naming and classifying the many important characteristics of colloidal systems. At present, the well-known, systematic terminology used by FREUNDLICH in his classic treatise "Colloid and Capillary Chemistry" needs modification in view of present knowledge of the morphology of polymers and other colloidal materials. For example, many of the substances included in FREUNDLICH's classification have now been so well identified and characterized as polymer macromolecules that the older terminology is obsolete. Undoubtedly, some co-ordination in terminology with efforts of the many investigators in the fields of electron microscopy, X-ray diffraction, and rheology would be valuable to all concerned.

(6) The specification of density of colloidal agglomerates as regards "bulk density", particle density, true density, pore volume, and pore size distribution needs classification and general agreement.

(7) The concept of micelles involves inherent vagueness as to the lower and upper size limits to which the name is properly applicable; there is further difficulty in defining the limit between solubilization in micelles and the formation of micro droplets of a true emulsion. There is other confusion in the use of the term solubilization. The use of the terms soap, surfactant, syndet, amphipath and amphiphile is confused.

Although it may be true that IUPAC may have separate mechanisms for organizing special congresses, symposia, etc., much can be contributed through the organization of a permanent Division of Colloid and Surface chemistry because of its advisory function to IUPAC and world science. In the past there have been three Congresses on Surface Activity. In terms of the discussion given above, it is obvious that the title "Surface Activity" was probably too narrow. Also, in each of these congresses far too many of the papers presented were concerned with purely technological and applied aspects, many of which would be more proper in symposia concerned with oils, fats, and industrial processes of producing organic synthetic chemicals from cheap materials. In a congress burdened with so many papers of these types, attention to and discussion of the basic aspects of the subject is relegated to a minor role. Experience has shown that the success of a con-



gress is not measured by the size of the programme but the quality of the papers and the scientific competence of the participants. From the point of view of the American chemists, the timing of these congresses was not good. For example, the Third Congress coincided with the Annual Fall Meeting of the American Chemical Society in New York, and hence participation by our American associates was necessarily minor. It is apparent that international interest in colloid and surface chemistry is so great that additional world congresses and symposia are desirable; unquestionably, the creation of a division concerned with this subject in IUPAC would do much to help crystallize thinking and assist in planning more valuable world congresses in the future.









*W. J. G. v. e.*



**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 14B**

SEPTEMBER, 1961

SECRETARY GENERAL:

Dr. R. Morf, c/o F. Hoffmann-La Roche et Cie., SA, Bâle 2 (Suisse)

Butterworth Scientific Publications · London



# PRELIMINARY REPORT OF THE COMMISSION ON ATOMIC WEIGHTS

## INTRODUCTION

The tentative decision of IUPAC at the Munich Conference in 1959, to replace the chemical scale of atomic weights by a new scale based on carbon isotope -12 as the reference species was given final approval at the Montreal Conference. This action was taken in view of a similar action by the International Union of Pure and Applied Physics, in 1960, to replace the physical scale, for which oxygen isotope -16 was the reference species, by the carbon -12 scale. If the actions taken by the two Unions are adhered to by physicists and chemists generally, all nuclidic masses and atomic weights, and the quantities and constants derived from them will henceforth be expressed on a common scale, for which the exact number 12 is taken as the relative nuclidic (atomic) mass of carbon isotope -12.

The full report of the Commission on Atomic Weights will be published in the Comptes Rendus of the Montreal Conference. In order to make the revised values for atomic weights available as promptly as possible, the 1961 Table, based on the carbon -12 scale, is printed herewith. Changes from the 1959 table are the result not only of the systematic changes required by the change of scale but of the re-evaluation, by the Commission, of the experimental work from which the atomic weight of each element is derived.

Several values are given to a higher precision (more decimal digits) than heretofore. This applies primarily to mononuclidic elements but also to a few others in keeping with the long-standing policy of the Commission to indicate the highest possible precision consistent with the convention of using as the last digit the one believed to be reliable to within half its value. Where this convention is not applicable, the estimated experimental uncertainty is given in a footnote. In keeping with the practice of recent years, atomic weights are not given for radioactive elements other than thorium and uranium because the atomic weights of such elements are variable depending upon their natural source or the mode of their artificial preparation.

In its report to the Council the Commission recommended that its name be changed to "Commission on Atomic Masses" and that the customary table should be entitled, "Table of Relative Atomic Masses". Approval of these recommendations was withheld by the Committee of the Section of Inorganic Chemistry pending their consideration by the Commission on Inorganic Nomenclature. It is expected that the question will be resolved before the full report of the Commission is published in the Comptes Rendus of the Montreal Conference.

5 October, 1961

Commission on Atomic Weights

T. Batuecas, President

J. Gueron, Secretary

# TABLE OF RELATIVE ATOMIC MASSES (ATOMIC WEIGHTS) 1961

## TABLE DES MASSES ATOMIQUES RELATIVES

### (TABLE DES POIDS ATOMIQUES) 1961

Order of Atomic Number / Par ordre des numéros atomiques

Atomic Number Numéro atomique	Name Nom	Symbol Symbole	Atomic Weight Poids atomique	Atomic Number Numéro atomique	Name Nom	Symbol Symbole	Atomic Weight Poids atomique
1	Hydrogen	H	1.00797 $\pm 0.00001^a$	41	Niobium	Nb	92.906
2	Helium	He	4.0026	42	Molybdenum	Mo	95.94
3	Lithium	Li	6.939	43	Technetium	Tc	.....
4	Beryllium	Be	9.0133	44	Ruthenium	Ru	101.07
5	Boron	B	10.811 $\pm 0.003^a$	45	Rhodium	Rh	102.905
6	Carbon	C	12.01115 $\pm 0.00005^a$	46	Palladium	Pd	106.4
7	Nitrogen	N	14.0067	47	Silver	Ag	107.870 <sup>b</sup>
8	Oxygen	O	15.9994 $\pm 0.0001^a$	48	Cadmium	Cd	112.40
9	Fluorine	F	18.9984	49	Indium	In	114.82
10	Neon	Ne	20.183	50	Tin	Sn	118.69
11	Sodium	Na	22.9898	51	Antimony	Sb	121.75
12	Magnesium	Mg	24.312	52	Tellurium	Te	127.60
13	Aluminium	Al	26.9815	53	Iodine	I	126.9044
14	Silicon	Si	28.086 $\pm 0.001^a$	54	Xenon	Xe	131.30
15	Phosphorus	P	30.9738	55	Cesium	Cs	132.905
16	Sulfur	S	32.064 $\pm 0.003^a$	56	Barium	Ba	137.34
17	Chlorine	Cl	35.453 <sup>b</sup>	57	Lanthanum	La	138.91
18	Argon	Ar	39.948	58	Cerium	Ce	140.12
19	Potassium	K	39.102	59	Praseodymium	Pr	140.907
20	Calcium	Ca	40.08	60	Neodymium	Nd	144.24
21	Scandium	Sc	44.956	61	Promethium	Pm	.....
22	Titanium	Ti	47.90	62	Samarium	Sm	150.35
23	Vanadium	V	50.942	63	Europium	Eu	151.96
24	Chromium	Cr	51.996 <sup>b</sup>	64	Gadolinium	Gd	157.25
25	Manganese	Mn	54.9380	65	Terbium	Tb	158.924
26	Iron	Fe	55.847 <sup>b</sup>	66	Dysprosium	Dy	162.50
27	Cobalt	Co	58.9332	67	Holmium	Ho	164.930
28	Nickel	Ni	58.71	68	Erbium	Er	167.26
29	Copper	Cu	63.54	69	Thulium	Tm	168.934
30	Zinc	Zn	65.37	70	Ytterbium	Yb	173.04
31	Gallium	Ga	69.72	71	Lutetium	Lu	174.97
32	Germanium	Ge	72.59	72	Hafnium	Hf	178.49
33	Arsenic	As	74.9216	73	Tantalum	Ta	180.948
34	Selenium	Se	78.96	74	Tungsten	W	183.85
35	Bromine	Br	79.909 <sup>b</sup>	75	Rhenium	Re	186.2
36	Krypton	Kr	83.80	76	Osmium	Os	190.2
37	Rubidium	Rb	85.47	77	Iridium	Ir	192.2
38	Strontium	Sr	87.62	78	Platinum	Pt	195.09
39	Yttrium	Y	88.905	79	Gold	Au	196.967
40	Zirconium	Zr	91.22	80	Mercury	Hg	200.59
				81	Thallium	Tl	204.37
				82	Lead	Pb	207.19
				83	Bismuth	Bi	208.980
				84	Polonium	Po	.....
				85	Astatine	At	.....
				86	Radon	Rn	.....



c/o F. Hoffmann-La Roche &amp; Co. Ltd.,

BASLE 2, SWITZERLAND

Telegrams: IUPAC Basle - Telephone 32 38 20

—  
RUDOLF MORF, Secretary GeneralU R G E N T

Gentlemen,

Please note that there is an error in the Tables of Relative Atomic Masses (Atomic Weights) 1961 printed in the IUPAC Information Bulletin No 14B as follows :

Page 2                      4 Beryllium Be 9.0133

should read                4 Beryllium Be 9.0122

Page 3                      Beryllium Be 4 9.0133

should read                Beryllium Be 4 9.0122

Thank you

Messieurs,

Veillez noter qu'une erreur s'est glissée dans la Table des masses atomiques relatives (Table des poids atomiques) 1961, parue dans le Bulletin d'Information No 14B de l'Union Internationale de Chimie Pure et Appliquée.

A la page 2, lire            4 Beryllium Be 9.0122

au lieu de                4 Beryllium Be 9.0133

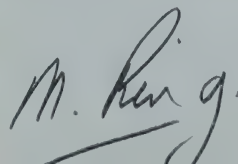
A la page 3, lire            Beryllium Be 4 9.0122

au lieu de                Beryllium Be 4 9.0133

Je vous prie d'agréer, Messieurs, l'expression de mes sentiments les meilleurs.

La secrétaire du Dr Morf

Bâle, le 19 octobre 1961  
5842





Atomic Number Numéro atomique	Name Nom	Symbol Symbole	Atomic Weight Poids atomique	Atomic Number Numéro atomique	Name Nom	Symbol Symbole	Atomic Weight Poids atomique
87	Francium	Fr	.....	95	Americium	Am	.....
88	Radium	Ra	.....	96	Curium	Cm	.....
89	Actinium	Ac	.....	97	Berkelium	Bk	.....
90	Thorium	Th	232.038	98	Californium	Cf	.....
91	Protactinium	Pa	.....	99	Einsteinium	Es	.....
92	Uranium	U	238.03	100	Fermium	Fm	.....
93	Neptunium	Np	.....	101	Mendelevium	Md	.....
94	Plutonium	Pu	.....	102	Nobelium	No	.....

<sup>a</sup> Atomic weights so designated are known to be variable because of natural variations in isotopic composition. The observed ranges are:

Hydrogen	$\pm 0.00001$	Oxygen	$\pm 0.0001$
Boron	$\pm 0.003$	Silicon	$\pm 0.001$
Carbon	$\pm 0.00005$	Sulfur	$\pm 0.003$

<sup>b</sup> Atomic weights so designated are believed to have the following experimental uncertainties:

Chlorine	$\pm 0.001$	Bromine	$\pm 0.002$
Chromium	$\pm 0.001$	Silver	$\pm 0.003$
Iron	$\pm 0.003$		

For other elements the last digit is believed to be reliable to  $\pm 0.5$ .

Ordre alphabétique en langue anglaise / Alphabetical Order in English

Name Nom	Symbol Symbole	Atomic Number Numéro atomique	Atomic Weight Poids atomique	Name Nom	Symbol Symbole	Atomic Number Numéro atomique	Atomic Weight Poids atomique
Actinium	Ac	89	.....	Chromium	Cr	24	51.996 <sup>b</sup>
Aluminium	Al	13	26.9815	Cobalt	Co	27	58.9332
Americium	Am	95	.....	Copper	Cu	29	63.54
Antimony	Sb	51	121.75	Curium	Cm	96	.....
Argon	Ar	18	39.948	Dysprosium	Dy	66	162.50
Arsenic	As	33	74.9216	Einsteinium	Es	99	.....
Astatine	At	85	.....	Erbium	Er	68	167.26
Barium	Ba	56	137.34	Europium	Eu	63	151.96
Berkelium	Bk	97	.....	Fermium	Fm	100	.....
Beryllium	Be	4	9.0133	Fluorine	F	9	18.9984
Bismuth	Bi	83	208.980	Francium	Fr	87	.....
Boron	B	5	10.811	Gadolinium	Gd	64	157.25
			$\pm 0.003^a$	Gallium	Ga	31	69.72
Bromine	Br	35	79.909 <sup>b</sup>	Germanium	Ge	32	72.59
Cadmium	Cd	48	112.40	Gold	Au	79	196.967
Calcium	Ca	20	40.08	Hafnium	Hf	72	178.49
Californium	Cf	98	.....	Helium	He	2	4.0026
Carbon	C	6	12.01115	Holmium	Ho	67	164.930
			$\pm 0.00005^a$	Hydrogen	H	1	1.00797
Cerium	Ce	58	140.12				$\pm 0.00001^a$
Cesium	Cs	55	132.905	Indium	In	49	114.82
Chlorine	Cl	17	35.453 <sup>b</sup>	Iodine	I	53	126.9044

Name Nom	Symbol Symbole	Atomic Number Numéro atomique	Atomic Weight Poids atomique	Name Nom	Symbol Symbole	Atomic Number Numéro atomique	Atomic Weight Poids atomique
Iridium	Ir	77	192.2	Radon	Rn	86	.....
Iron	Fe	26	55.847 <sup>b</sup>	Rhenium	Re	75	186.2
Krypton	Kr	36	83.80	Rhodium	Rh	45	102.905
Lanthanum	La	57	138.91	Rubidium	Rb	37	85.47
Lead	Pb	82	207.19	Ruthenium	Ru	44	101.07
Lithium	Li	3	6.939	Samarium	Sm	62	150.35
Lutetium	Lu	71	174.97	Scandium	Sc	21	44.956
Magnesium	Mg	12	24.312	Selenium	Se	34	78.96
Manganese	Mn	25	54.9380	Silicon	Si	14	28.086
Mendelevium	Md	101	.....				$\pm 0.001^a$
Mercury	Hg	80	200.59	Silver	Ag	47	107.870 <sup>b</sup>
Molybdenum	Mo	42	95.94	Sodium	Na	11	22.9898
Neodymium	Nd	60	144.24	Strontium	Sr	38	87.62
Neon	Ne	10	20.183	Sulfur	S	16	32.064
Neptunium	Np	93	.....				$\pm 0.003^a$
Nickel	Ni	28	58.71	Tantalum	Ta	73	180.948
Niobium	Nb	41	92.906	Technetium	Tc	43	.....
Nitrogen	N	7	14.0067	Tellurium	Te	52	127.60
Nobelium	No	102	.....	Terbium	Tb	65	158.924
Osmium	Os	76	190.2	Thallium	Tl	81	204.37
Oxygen	O	8	15.9994	Thorium	Th	90	232.038
			$\pm 0.0001^a$	Thulium	Tm	69	168.934
Palladium	Pd	46	106.4	Tin	Sn	50	118.69
Phosphorus	P	15	30.9738	Titanium	Ti	22	47.90
Platinum	Pt	78	195.09	Tungsten	W	74	183.85
Plutonium	Pu	94	.....	Uranium	U	92	238.03
Polonium	Po	84	.....	Vanadium	V	23	50.942
Potassium	K	19	39.102	Xenon	Xe	54	131.30
Praseodymium	Pr	59	140.907	Ytterbium	Yb	70	173.04
Promethium	Pm	61	.....	Yttrium	Y	39	88.905
Protactinium	Pa	91	.....	Zinc	Zn	30	65.37
Radium	Ra	88	.....	Zirconium	Zr	40	91.22

<sup>a</sup> Atomic weights so designated are known to be variable because of natural variations in isotopic composition. The observed ranges are:

Hydrogen	$\pm 0.00001$	Oxygen	$\pm 0.0001$
Boron	$\pm 0.003$	Silicon	$\pm 0.001$
Carbon	$\pm 0.00005$	Sulfur	$\pm 0.003$

<sup>b</sup> Atomic weights so designated are believed to have the following experimental uncertainties:

Chlorine	$\pm 0.001$	Bromine	$\pm 0.002$
Chromium	$\pm 0.001$	Silver	$\pm 0.003$
Iron	$\pm 0.003$		

For other elements the last digit is believed to be reliable to  $\pm 0.5$ .



## INTRODUCTION

This issue of the Bulletin contains information on the new composition of the Bureau and Section Committees as well as the more important resolutions of the Council at Montreal. It covers the period of the Conference i.e. the month of August 1961 only. No mention will be made of the Congress in order to avoid repetition as this will be dealt with in the Comptes Rendus XXI.

We should like to take this opportunity of expressing the hearty thanks of IUPAC to our Canadian colleagues whose efforts contributed so much to the success of the Conference.

The Charter Flight was a great success, both financially and socially, and those who took advantage of it were rewarded with an extremely comfortable and agreeable flight across the Atlantic. We intend to try to organize more such flights in connection with future meetings.

Some of the more important resolutions of the Council are given below:

- (1) Formation of a new Commission Colloid and Surface Chemistry in the Physical Chemistry Section;
- (2) Final adoption of the new scale of atomic masses based on the isotope Carbon 12 (see tables on page 1);
- (3) Appointment of an *ad hoc* committee under the chairmanship of Prof. P. E. VERKADE, to examine the structure of the Union, to make proposals for its revision including changes in the Statutes and to report before the next Conference of the Union;
- (4) Approval of the issue of *The Tentative Rules for the Abbreviations and Symbols for Chemical Names of Special Interest in Biological Chemistry* and of its widespread publication in appropriate chemical and biochemical journals;
- (5) Approval of the *tentative* recommendations for Steroid Nomenclature (printed as an appendix to Information Bulletin No. 11);
- (6) M.K.S.A.—C.G.S. System of Units

Approval of the recommendation of the Physical Chemistry Section that

1. Coulombs and volts and units derived from these be used in electrical problems;

2. in problems involving both electrical and mechanical quantities, the units of the M.K.S.A. system be used as basic units;

- (7) Symbols for Helmholtz and Gibbs Energy

Approval of the recommendation of the Physical Chemistry Section that as far as possible the letter F be not used for the Helmholtz and Gibbs energies but that A be used for the Helmholtz energy and G for the Gibbs energy, the letter F to be used only in very exceptional instances. Consequently in *The Manual of Physico-chemical Symbols and Terminology* (London, 1959), pages 14 and 15, numbers 309 and 311 be replaced by;

309	Helmholtz energy ( $Gibbs \psi = E-TS$ )	A ... F
311	Gibbs energy ( $Gibbs \zeta = H-TS$ )	G ... F

- (8) Relations with adhering bodies

The Council approved changes in categories of the adhering bodies of the following countries:

Belgium	from Category B to Category A1
Denmark	from Category B1 to Category B2
Netherlands	from Category B to Category A1

- (9) Approval of the Preliminary Budget for 1962 and 1963

1. Approval of the recommendation of the Bureau that in 1962 funds may only be provided for meetings of Sections, Divisions and Commissions which will take place in Western Europe; and in 1963 only for meetings of Sections, Divisions and Commissions in London.

There are two exceptions only, namely:

- (a) The Section President of the Physical Chemistry Section may go or be represented by one person travelling at the expense of IUPAC to the Symposium on Molecular Spectroscopy in Tokyo in 1962,
  - (b) The Section President of the Biological Chemistry Section may go or be represented by one person travelling at the expense of IUPAC to the Clinical Chemistry Congress in Detroit in 1963.
2. Approval of the Council's unanimous decision that the minimum annual subscription be as follows:

Category A1	2600 dollars
A2	5000 dollars
A3	10000 dollars
B1	800 dollars
B2	1600 dollars
C	450 dollars

## **NEW COMPOSITION OF THE BUREAU**

### **Executive Committee**

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Sir E. CHARLES DODDS, Treasurer

V. N. KONDRATIEV

W. KLEMM

M. LETORT

R. MORF, Secretary General

Sir ALEXANDER TODD

### **Bureau**

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#### **Vice-Presidents**

G. CHAUDRON, Membre de l'Institut, Directeur de l'Ecole nationale supérieure de Chimie, 11, rue Pierre-Curie, Paris (France)

W. KLEMM, Anorganisch-chemisches Institut der Universität, Hindenburgplatz 55, Münster Westf. (Germany)

Sir ALEXANDER TODD, Chemical Laboratory of the University, Lensfield Road, Cambridge (GB)

### **Six Presidents of Sections**

J. BUSHILL, The Laboratories, 149 Hammersmith Road, London W.14 (Applied Chemistry Section)

H. J. EMELEUS, F.R.S. Chemical Laboratory, Lensfield Road, Cambridge (GB) (Inorganic Chemistry Section)

H. ERDTMAN, Royal Institute of Technology, Stockholm 70 (Sweden) (Organic Chemistry Section)

E. J. KING, Postgraduate Medical School, Ducane Road, London W.12 (GB) (Biological Chemistry Section)

H. MALISSA, Prof., Technische Hochschule, Getreidemarkt 9, Vienna (Austria) (Analytical Chemistry Section)

G.-M. SCHWAB, Prof., Physikalisch-chemisches Institut, Sophienstrasse 11, Munich (Germany) (Physical Chemistry Section)

### Elected Members

- 1961-1965 T. GOVINDACHARI, Dr., Department of Chemistry, Presidency College, Madras 5, India
- 1961-1963 V. N. KONDRATIEV, Prof., Academy of Sciences, Institute of Chemical Physics, Vorobjevkoje Chaussée 2, Moscow (USSR)
- 1963 M. LETORT, Prof., 35, rue St-Dominique, Paris-7<sup>e</sup> (France)
- 1963 D. MAROTTA, Prof., Istituto superiore di Sanità, Roma (Italie)
- 1961-1965 C. E. NABUCO DE ARAUJO, Jr., Dr., Rua Fonte da Saudade, 47-ap. 403, Lagoa, Rio de Janeiro (Brazil)
- 1961-1963 R. TOURKY, Prof., Director, National Research Centre, Dokki, Cairo (UAR)
- 1963 P. E. VERKADE, Ary Schefferstraat 217, La Haye (Netherlands)
- 1961-1965 O. WICHTERLE, Prof., Vaclavkova 2, Praha 6-Dejvice (Czechoslovakia)

### Secretary General

R. MORF, Basle 2 (Switzerland)

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- 1961-1965 K. SCHAEFER, Prof., Direktor des Instituts für physikalische Chemie der Universität, Ploek 55, Heidelberg (Germany)
- 1961-1965 P. VAN RYSSELBERGHE, Prof., Department of Chemistry and chemical Engineering of the University, Stanford, Cal. (USA)
- 1959-1963 E. WICHERS, Dr, National Bureau of Standards, Washington 25 D.C. (USA)
- 1961-1965 R. C. LORD, Dr, Spectroscopy Laboratory, Massachusetts Institute of Technology, Cambridge, Mass. (USA)

- 1961-1965 Sir ERIC RIDEAL, Royal College of Sciences, Imperial  
Institute Road, London S.W.7 (GB)  
1959-1963 H. W. THOMPSON, Dr, St. John's College, Oxford (GB)

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1959-1963 L. BREWER, Prof., Department of Chemistry, University of California, Berkeley 4 (USA)  
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1959-1963 K. A. JENSEN, Prof., Københavns Universitets kemiske Labor, 5 Østervoldgade, Copenhagen K (Danemark)  
1959-1963 I. V. TANANAIYEV, Prof., Académie des Sciences, Institut de chimie générale et inorganique, Lenin-Prospekt 37, Moscou (URSS)  
1959-1963 E. WIBERG, Prof., Universität, Meiserstr. 1, Munich (Germany)

## SECTION DE CHIMIE ORGANIQUE SECTION OF ORGANIC CHEMISTRY

*Président: Prof. H. ERDTMAN*

### Comité de Section / Section Committee

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**SECTION DE CHIMIE BIOLOGIQUE**  
**SECTION OF BIOLOGICAL CHEMISTRY**

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**Comité de Section / Section Committee**

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- 1960-1963 M. FREEMAN, River House, A 202, 1400 South Joyce Street,  
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- 1960-1963 K. BAILEY, Department of Biochemistry, University of  
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- 1960-1963 V. N. OREKHOVITCH, Prof., Institute of Biological and  
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**SECTION DE CHIMIE ANALYTIQUE**  
**SECTION OF ANALYTICAL CHEMISTRY**

*Président: Prof. H. MALISSA*

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- 1961-1965 W. FISCHER, Prof.
- 1961-1965 N. TANAKA, Prof., Department of Chemistry, Tohoku Uni-  
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- 1961-1965 R. BELCHER, Prof., Department of Chemistry, The University,  
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- 1961-1965 P. N. DELAHAY, Prof., Chemistry Department, Louisiana  
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- 1961-1965 R. PRIBIL, Prof., Londynska 56, Praha 2-Vinohrady  
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## SECTION DE CHIMIE APPLIQUÉE APPLIED CHEMISTRY SECTION

*Président: Dr. J. H. BUSHILL*

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- 1961-1963 *Vice-Président* R. TRUHAUT, Prof., Faculté de Pharmacie, 4, av. de l'Observatoire, Paris-6<sup>e</sup> (France)
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- 1961-1963 L. A. JORDAN, Dr., Oakhill Drive, Langley Road, Surbiton, Surrey (GB)
- 1961-1963 H. LUNDIN, Prof., Royal Institute of Technology, Division of Food Chemistry, Stockholm 70 (Sweden)
- 1961-1963 R. NICOLAYSEN, Prof., Nutrition Research Institute, University of Oslo, Blindern (Norway)
- 1961-1963 H. STURM, Dr., c/o F. Steinfels AG, Heinrichstr. 255, Zurich (Switzerland)
- 1961-1963 G. DRING, Mr., Bakelite Ltd., 12-18 Grosvenor Gardens, London S.W.1 (GB)
- 1961-1963 R. F. M. LIGHT, Mr., Standard Brands Inc., 625 Madison Avenue, New York (USA)
- 1961-1963 B. L. OSER, Dr., Food Research Laboratories Inc., 48-14 33rd Street, Long Island City 1, N.Y. (USA)
- 1961-1963 J. C. GAGE, Dr., I.C.I. Ltd., Industrial Hygiene Research Labs. The Frythe, Welwyn, Herts. (GB)
- 1961-1963 B. A. SOUTHGATE, Dr., Water Pollution Research Laboratories, Elder Way, Stevenage, Herts. (GB)
- 1961-1963 R. A. E. GALLEY, Dr., Shell Research Ltd., Woodstock Agricultural Research Centre, Sittingbourne, Kent (GB)

### PROPOSAL CONCERNING THE SITES OF FUTURE CONFERENCES

It has been the traditional policy of the Union to meet every two years in an official conference involving the Council, Bureau, Section Committees and Commissions and, at least in recent years, these meetings have been associated with an International Congress. For a variety of reasons it will be clear that the location of these Congresses should range widely over the world; equally it is desirable that the Union as an international body should hold at least some of its meetings in widely separated parts of the world. The policy as outlined above has led to recurring financial crises in the Union's affairs and this situation will continue and is indeed likely to become more serious with the continuing growth of the Union's activities. Some measure of the financial problems may be gained from the fact that to hold a Conference of the Union at the present time in Montreal or in Moscow must involve an additional cost of \$100000 as compared with a corresponding meeting in Western Europe. Since these costs are made up essentially of travel and subsistence allowances for titular members it could reasonably be argued that the Union is being very extravagant. I believe it is possible

for the Union to change its practice in such a way as to remove this criticism and at the same time operate more efficiently.

According to the Statutes the Bureau must meet once in each year and the Council (i.e. the General Conference of the Union) at least once every two years. But there is no requirement that the Conference be associated with a Congress nor is there any restriction as to the place where it is held. Nor is there any restriction on the location of Commission meetings.

I would therefore propose:

(1) That General Conferences of the Union be held for the time being in Western Europe and preferably in one place where the General Secretariat is located. In so far as possible meetings of Commissions occurring apart from the Conference should be held either in the same place or in such other location as will result in a lesser expenditure;

(2) that the biennial meeting of the Bureau and Executive Committee should be allowed to rotate geographically rather as the Conference rotates at present. This would meet the point that some Union activity should clearly be held in a variety of locations in the world without the vast expenses of holding Conferences in various parts of the world.

Advantages other than purely financial would accrue from such changes. Secretarial assistance is a continual problem for Presidents of Sections and Commissions. This problem could be solved most economically by strengthening the Union's Secretariat. Meetings held where the Secretariat is located would then be properly serviced and all files, etc. would be directly available. I realize that changes of this nature would represent quite a break with tradition and would need to be carefully considered before action is taken. But I believe they warrant urgent attention so that if they seem desirable they could be adopted at the London Conference in 1963.

Sir ALEXANDER TODD

### **SUGGESTION CONCERNANT LES LIEUX DES FUTURES CONFÉRENCES**

Il a toujours été de tradition à l'Union de réunir tous les deux ans une conférence officielle comprenant le Conseil, le Bureau, les Comités de Sections et les Commissions et, du moins récemment, ces réunions ont été associées à un Congrès international. Pour de nombreuses raisons, il est clair que ces Congrès doivent être tenus dans les diverses parties du monde. Il semblerait également souhaitable que l'Union, en tant qu'organisme international, tienne au moins quelques-unes de ses réunions dans des pays divers. La politique précédente suscite des difficultés financière à l'Union, et cette situation risque même de s'aggraver vu l'accroissement continu des activités de l'Union. L'ampleur de ces problèmes financiers peut être mise en évidence par le fait qu'une conférence de l'Union à Montréal, comme actuellement, ou à Moscou, entraîne une augmentation des dépenses d'environ \$100 000 par rapport à la tenue de la même réunion en Europe occidentale. Etant donné que ces frais consistent essentiellement en frais de voyage et subsistance pour les membres titulaires, on peut en déduire que l'Union est vraiment extravagante. Je crois qu'il est possible pour l'Union d'éviter cette critique et par la même occasion d'agir avec plus d'efficacité en adoptant une nouvelle manière de faire.

Selon les Statuts, le Bureau doit se réunir une fois par an, et le Conseil (c'est-à-dire la Conférence générale de l'Union) au moins une fois tous les deux ans. Mais il n'existe aucun règlement stipulant que la Conférence doit être associée à un Congrès, et aucune restriction quant à l'endroit où la Conférence ou la réunion des Commissions doivent avoir lieu.



C'est pourquoi j'aimerais proposer:

1<sup>o</sup> que, la Conférence générale de l'Union dorénavant se tienne en Europe occidentale, et de préférence dans la ville où réside le Secrétariat général. Autant que possible, les réunions des Commissions devraient également y être tenues, ou dans tout autre lieu plus avantageux.

2<sup>o</sup> que, les années de non-conférence, une rotation géographique soit autorisée pour les réunions du Bureau et du Comité exécutif, comme c'est le cas actuellement pour la Conférence. Ceci répondrait au désir que certaines des activités de l'Union puissent se dérouler dans différentes parties du monde, sans entraîner les grandes dépenses qu'occasionneraient des Conférences dans ces mêmes endroits.

Des avantages autres que d'ordre purement financier résulteraient de tels changements. La question d'un secrétariat est le souci constant des présidents des Sections et Commissions. Ce problème pourrait être résolu plus économiquement en renforçant le Secrétariat général de l'Union. Les réunions tenues dans la ville où le Secrétariat a son siège profiteraient ainsi de nombreux avantages, et tous les dossiers, etc., pourraient y être tenus à disposition.

Je réalise que des changements de cette nature représenteraient une rupture avec la tradition et devraient être examinés soigneusement avant qu'une décision soit prise. Mais, je crois qu'il est urgent de les étudier afin que s'ils semblent judicieux, ils puissent être adoptés lors de la Conférence de Londres en 1963.

Sir ALEXANDER TODD

## REPORT OF THE AD HOC FINANCE COMMITTEE

The financial affairs of the Union are too complex to allow solution by an *ad hoc* committee which meets for a day or two. Indeed, we feel that the financial problems of the Union will *never* be settled, for the simple reason that the more money is available, the more projects the Union will wish to undertake. At this time, we wish only to call attention to some aspects of the Union's financial situation and to suggest actions which may be of benefit.

While the Union is in no immediate financial danger, the present arrangements are precarious ones, and steps should be taken to change them as quickly as possible. The generous support of Hoffmann-La Roche, Ciba, Geigy and Sandoz in supporting the office of the Secretary-General is deeply appreciated, and it is hoped that these companies will see fit to continue to support the activities of the Union in this way, but it should be realized that it may not always be possible for them to do so. Steps should be taken to guard against that contingency. This requires a guaranteed, continuous income.

The balance sheet of any organization can be improved in either of two ways—by spending less, or by taking in more. While we certainly wish to curtail expenses as much as possible, we realize that the expanding activities of the Union will demand an ever-increasing budget. Indeed, our first recommendation authorizes the Bureau to expend funds in a way in which our funds have not been used before. A few adhering bodies which are active members of the Union have no representation on either commissions or committees, so the benefits which they derive from Union membership are greatly reduced. The *ad hoc* Committee on Finance recommends that the Bureau be given authority to pay for travel and subsistence for one delegate from each of these bodies to Conferences of the Union.

In attempts to save money, the Committee has three recommendations:

First, in line with the suggestion made by Sir ALEXANDER TODD, we



suggest that future conferences generally be held in Western Europe. When possible, these shall be held in conjunction with congresses, but there need not always be a connection between conferences and congresses, as the latter should be as widely distributed as possible. When a Congress is not held in conjunction with a conference, a symposium or a series of lectures, may be arranged for those who wish a scientific programme.

Second, the charter flight bringing delegates from Europe to Montreal for this meeting has shown that such flights are practical and can result in great savings to the Union. It is recommended that the Bureau be given authority to decide in connection with each conference whether charter flights should be arranged. If such arrangements are made, delegates would have the choice of using the charter flight or of receiving for transportation the equivalent of the charter flight fare.

Third, it is recommended that adhering bodies be asked to pay, or arrange for the payment of, the travel and subsistence of their titular members whenever possible. These payments are to be considered, as contributions to the Union.

As far as increased income is concerned, it is to be greatly hoped that a continuing source of funds can be developed which will obviate the necessity of having a year-to-year campaign. Only in this way can the Union be assured that it can carry out its long range plans. Income must be sought from a variety of sources in many parts of the world.

Some sources are:

(a) Contributions from Industry. If a programme of soliciting funds from industry is to be successful, details as to tax-exemptions, use of funds, and specific purposes of the Union must be developed and properly presented. In view of the increasing importance and activity of our Section on Applied Chemistry, Boards of Directors of industrial companies should be asked to suggest ways in which the Union could be of increased usefulness. They will thus be led to understand the nature of the Union and its value to chemical industry.

Since the tax laws, the economic systems, and the customs of the countries which belong to the Union differ so widely, it does not seem possible to suggest a uniform plan of raising money in different countries. Rather, it is recommended that some person (or, perhaps two or three persons) be appointed in each country in an honorary capacity to devise more efficient and fruitful means of raising funds in that country, and to put such plans into effect. These national representatives shall keep in touch with each other, either directly or through the office of the Secretary-General for mutual aid and to generate friendly competition in the matter of contributions to the Union.

(b) Contributions from chemical societies. Since the work of the Union relieves the national societies of a great deal of work and expense, and since it benefits all chemists, the societies should be willing to support the Union financially.

(c) Contributions from governments or governmental units, at least for the support of certain activities of the Union. For example, departments of foreign affairs might be asked to pay travel and subsistence of the delegates of their respective countries to conferences.

(d) Bequests from philanthropic foundations and individuals.

Finally, the *ad hoc* Committee on Finance recommends that as occasion allows, its funds which are now invested in government bonds and other funds available for investments be reinvested in the stocks of stable companies which have interests in chemical work. It is our opinion that over a period of years, this will result in a substantially greater income.

*Signed:* J. C. BAILAR, Chairman

## RAPPORT DU COMITÉ AD HOC DES FINANCES

Les affaires financières de l'Union sont trop complexes pour être traitées par un Comité ad hoc qui se réunit un jour ou deux. En fait, nous pensons que les problèmes financiers de l'Union ne seront jamais résolus pour la simple raison que plus elle aura d'argent à sa disposition, plus l'Union aura aussi de projets. Pour le moment, nous ne désirons qu'attirer l'attention sur certains aspects de la situation financière de l'Union et suggérer quelques mesures qui pourraient être d'un certain profit.

Bien que l'Union ne soit pas en face d'un danger financier immédiat, les arrangements actuels sont précaires et des démarches devraient être entreprises afin de les modifier aussitôt que possible. Nous apprécions très vivement l'aide généreuse de Hoffmann-La Roche, Ciba, Geigy et Sandoz concernant le bureau du Secrétariat Général et espérons que ces compagnies voudront bien continuer à soutenir les activités de l'Union de cette manière, mais on doit se rendre compte qu'elles pourraient ne pas toujours être en mesure de le faire. Des démarches doivent être entreprises afin de se mettre en garde contre une telle possibilité. Ceci nécessite un revenu garanti et permanent.

Le bilan de chaque organisation peut être amélioré de deux manières: soit en dépensant moins, soit en augmentant les recettes. Bien que nous désirions certainement diminuer les dépenses autant que possible, nous savons que les activités croissantes de l'Union requerront un budget toujours plus élevé. En fait notre première recommandation autorise le Bureau à dépenser des sommes dans une telle proportion comme ce ne fut jamais le cas jusqu'à présent. Quelques pays membres, qui sont des membres actifs de l'Union, n'ont aucun représentant dans des Commissions ou Comités si bien que le bénéfice qu'ils peuvent retirer de l'Union en est grandement réduit. Le Comité ad hoc des Finances recommande que le Bureau soit autorisé à payer des frais de voyage et de séjour pour un délégué de chacun de ces organismes adhérents aux Conférences de l'Union.

Afin de réaliser des économies, le Comité propose 3 recommandations:

1<sup>o</sup> Selon la suggestion faite par Sir ALEXANDER TODD, nous suggérons que les futures Conférences aient lieu généralement en Europe occidentale. Lorsque cela sera possible, elles devraient être tenues en parallèle avec des Congrès, mais il n'est pas toujours nécessaire qu'il y ait relation entre les Conférences et les Congrès, car ces derniers devraient avoir lieu dans des endroits aussi variés que possible. Lorsqu'un Congrès n'est pas tenu parallèlement avec une Conférence, un symposium ou une série de conférences pourraient être arrangés pour ceux qui désirent un programme scientifique.

2<sup>o</sup> Le charter flight qui a amené les délégués d'Europe à Montréal pour cette Conférence a prouvé que de tels vols sont possibles et permettent de réaliser de grandes économies à l'Union. Il est à recommander que le Bureau soit autorisé à décider lors de chaque Conférence si des charter flights devraient être prévus. Si de tels arrangements sont faits, les délégués auraient le choix entre voyager par charter flight ou recevoir comme frais de transport l'équivalent du tarif du charter flight.

3<sup>o</sup> Il est recommandé que les organismes adhérents soient priés de payer ou d'arranger le paiement des frais de voyage et de séjour de leurs membres titulaires toutes les fois que cela est possible. Ces paiements doivent être considérés comme contribution à l'Union.

En ce qui concerne un revenu plus élevé, il est vivement souhaitable qu'une source permanente de revenu soit trouvée qui supprime l'obligation de lancer un appel de fonds chaque année. Ce n'est que de cette manière que l'Union peut être sûre de pouvoir réaliser ses projets à longue échéance.

Le revenu doit provenir de différentes sources dans de nombreuses parties du monde.

Quelques sources sont :

a) Contributions de l'industrie. Pour qu'un programme d'appel de fonds à l'industrie soit couronné de succès, les détails concernant l'exemption d'impôts, l'emploi des fonds et les buts précis poursuivis par l'Union doivent être mis au point et exposés clairement. Vu l'importance et l'activité croissantes de notre Section de Chimie appliquée, les directeurs d'industrie devraient être priés de suggérer de quelle manière l'Union pourrait leur être utile. Ils pourraient ainsi comprendre la nature de l'Union et sa valeur pour l'industrie chimique.

Etant donné que les lois fiscales, les systèmes économiques et les coutumes des organismes adhérents de l'Union diffèrent beaucoup, il ne semble pas possible de proposer un plan uniforme d'appel de fonds dans les différents pays. Il est préférable de recommander qu'une personne (ou peut-être 2 ou 3) soient désignées à titre honoraire dans chaque pays afin d'examiner les moyens les plus efficaces et utiles de récolter des fonds dans ce pays et de réaliser un tel programme. Ces représentants nationaux doivent rester en contact les uns avec les autres, soit directement, soit par l'intermédiaire du Secrétariat général afin de s'aider mutuellement et de créer ainsi une compétition amicale dans cette question des contributions à l'Union.

b) Contributions des sociétés chimiques. Etant donné que le travail de l'Union évite aux sociétés nationales une grande somme d'efforts et de dépenses, et profite ainsi à tous les chimistes, les sociétés devraient être prêtes à soutenir financièrement l'Union.

c) Contributions des Gouvernements ou divisions gouvernementales, au moins pour aider certaines activités de l'Union. Par exemple, les Départements des Affaires étrangères pourraient être priés de payer les frais de voyage et de séjour des délégués de leur pays respectif aux Conférences.

d) Dons de fondations philanthropiques et dons individuels.

Finalement, le Comité ad hoc des Finances recommande que lorsque l'occasion le permet, les fonds qui sont maintenant investis en obligations du Gouvernement et autres fonds disponibles pour investissements soient réinvestis en actions de compagnies établies qui s'intéressent aux travaux de recherche en chimie. Nous pensons que sur une période de plusieurs années ceci augmenterait considérablement le revenu de l'Union.

## **75° ANNIVERSAIRE DE LA SOCIÉTÉ CHIMIQUE DE BELGIQUE (1887-1962)**

### **Symposium international de Chimie organique consacré à l'étude des produits naturels**

sous les auspices de l'IUPAC, *Bruxelles 12-15 juin 1962*

A l'occasion du 75<sup>e</sup> anniversaire de sa fondation, la Société chimique de Belgique organise à Bruxelles, du 12 au 15 juin 1962, un Symposium international de Chimie organique consacré à l'étude des produits naturels, à l'exclusion des stéroïdes et des polypeptides.

Les travaux seront répartis en 5 sections appelées à travailler simultanément :



- 1° Détermination de la structure de produits naturels nouveaux
  - a) Travaux terminés ou en voie d'achèvement; b) structures controversées
- 2° Méthodes d'investigation structurale. – Apports nouveaux
  - a) Analyse et dégradation chimique; b) méthodes physiques; c) études stéréochimiques (configurationnelles et conformationnelles)
- 3° Synthèses et réactions chimiques (à l'exclusion des réactions de dégradation)
  - a) Synthèses stéréospécifiques ou hautement stéréosélectives; b) réactions stéréospécifiques
- 4° Hypothèses biogénétiques et leurs vérifications expérimentales
  - a) Suggestions nouvelles; b) extensions des théories classiques; c) études expérimentales; d) hypothèses controversées
- 5° Mode d'action des produits naturels intervenant dans les processus biologiques
  - a) Etudes expérimentales; b) interprétation des données expérimentales

Sept Conférences plénières seront données:

- Ouverture: Prof. R. B. WOODWARD (Cambridge, Etats-Unis)  
 1<sup>re</sup> Section: Sir ALEXANDER TODD (Cambridge, GB)  
 2<sup>e</sup> Section: Prof. K. BIEMANN (Boston, Etats-Unis)  
 3<sup>e</sup> Section: Prof. V. PRELOG (Zurich, Suisse)  
 4<sup>e</sup> Section: Prof. H. GRISEBACH (Fribourg, Allemagne)  
 5<sup>e</sup> Section: Prof. A. H. BECKETT (Londres, GB)  
 Clôture: Prof. G. OURISSON (Strasbourg, France)

Il est envisagé de distribuer le texte en langue anglaise des conférences plénières données dans une autre langue.

Les auteurs de communications utiliseront la langue de leur choix pour leur exposé. La durée de celui-ci, discussion comprise, ne pourra pas dépasser vingt minutes.

Les résumés seront rédigés en français, néerlandais, anglais ou allemand; ils n'excéderont pas 200 mots et devront parvenir au Secrétariat du Symposium avant le 1<sup>er</sup> février 1962.

Ils seront publiés dans le volume-programme qui sera remis aux participants du Symposium.

Les renseignements complémentaires relatifs au logement des congressistes et aux manifestations qui seront organisées à l'occasion du 75<sup>e</sup> anniversaire de la Société chimique de Belgique feront l'objet d'une seconde circulaire qui sera adressée à tous ceux qui retourneront la feuille-réponse.

Les délégués des instituts et organismes scientifiques qui désirent recevoir une invitation personnelle voudront bien en faire la demande au Président de la Société chimique de Belgique (p. a. Secrétariat du Symposium).

Des exemplaires supplémentaires de cette circulaire peuvent être obtenus sur demande à l'adresse ci-après:

*Secrétariat du Symposium international de chimie organique*  
 p. a. Fédération des Industries chimiques de Belgique,  
 32, rue Joseph-II, Bruxelles 4

Pour la Société chimique de Belgique:

P. KRUY, Drsc., Secrétaire général

Prof. A. BRUYLANTS, Président



**75th ANNIVERSARY OF THE "SOCIÉTÉ CHIMIQUE DE BELGIQUE"  
(1887-1962)**

**International Symposium on the Organic Chemistry of Natural Products**

under the auspices of the IUPAC, *Brussels 12 June-15 June, 1962*

On the occasion of the 75th anniversary of its foundation, the "Société chimique de Belgique" is organizing in Brussels, 12-15 June, 1962, an International Symposium on the Organic Chemistry of Natural Products (steroids and polypeptides excluded).

The proceedings will be divided into 5 sections working simultaneously:

- (1) Structure of new natural products
  - (a) Work completed or near completion; (b) controversial structures
- (2) Methods used for the determination of chemical structures
  - (a) Analytical methods and chemical degradation; (b) physical methods; (c) stereochemical investigations (configurational and conformational)
- (3) Syntheses and chemical reactions (excluding degradation reactions)
  - (a) Stereospecific or highly stereoselective syntheses; (b) stereospecific reactions
- (4) Biosynthetic theories and their experimental verifications
  - (a) New hypotheses; (b) extensions of classical theories; (c) experimental studies; (d) controversial theories
- (5) Mode of action of naturally occurring compounds in biological processes
  - (a) Experimental studies; (b) interpretation of experimental data

Seven *Plenary Lectures* will be given:

Opening lecture: Prof. R. B. WOODWARD (Cambridge, USA)

1st Section: Sir ALEXANDER TODD (Cambridge, GB)

2nd Section: Prof. K. BIEMANN (Boston, USA)

3rd Section: Prof. V. PRELOG (Zurich, Switzerland)

4th Section: Prof. H. GRISEBACH (Freiburg i.Br., Germany)

5th Section: Prof. A. H. BECKETT (London, GB)

Closing of the Congress: Prof. G. OURISSON (Strasbourg, France)

It is intended to make available English translations of all papers delivered at the plenary sessions.

Papers, which will be limited to 20 minutes (discussions included), may be delivered in any language.

Summaries, which should not exceed 200 words and should be written in one of the following languages: French, Dutch, English or German, must reach the Secretariat of the Symposium before 1 February 1962.

They will be printed in a programme booklet which will be distributed to Symposium participants.

Further information on accommodation and the various social functions to be held on the occasion of the 75th anniversary of the "Société chimique de Belgique" is contained in a second circular which may be obtained on request by sending in the appropriate questionnaire.

Delegates of the institutes and scientific organizations who wish to receive a personal invitation should write to the Chairman of the "Société chimique de Belgique" (c/o Secretariat of the Symposium).

Additional copies of this circular can be obtained on request by writing to the following address:

*Secretariat of the International Symposium of Organic Chemistry*  
c/o Fédération des Industries chimiques de Belgique,  
32, rue Joseph-II, Bruxelles 4

For the "Société chimique de Belgique":

P. KRUY, Dr.sc., General secretary      Prof. A. BRUYLANTS, Chairman

# INTERNATIONAL SYMPOSIUM ON MOLECULAR STRUCTURE AND SPECTROSCOPY

‡ The Science Council of Japan invites you to attend an International Symposium on Molecular Structure and Spectroscopy, which will be held in Tokyo, Japan from 10 to 15 September, 1962, under the sponsorship of the International Union of Pure and Applied Chemistry with the co-operation of the Japanese learned societies in this field of science.

*Scope and Organization of the Symposium.*—The Symposium will cover infrared, Raman, ultraviolet, and micro- and radio-wave spectroscopies, all of which are used in the elucidation of molecular structures. The main topics of the Symposium will be:

- ( 1) Theoretical (theory of chemical bonds, potential functions of molecules, and absorption intensities)
- ( 2) Rotation and rotation-vibration spectra for the determination of molecular structures
- ( 3) Assignment of bands in the vibration spectra
- ( 4) Electronic spectra (including fluorescence and phosphorescence spectra)
- ( 5) Spectra of unstable molecules and radicals
- ( 6) Internal rotation
- ( 7) Spectra of complex organic compounds including high polymers
- ( 8) Spectra of inorganic compounds including co-ordination compounds
- ( 9) Spectra and molecular interaction (including hydrogen bonding)
- (10) Techniques and applications

The Symposium will be open to all scientists interested in these topics and will consist of a plenary session and several section meetings. At the plenary session, lectures will be delivered by specially invited speakers, and at the section meetings, principal lectures and short communications will be given. The principal lectures will be given by invited speakers, while short communications may be presented by any participant, the number of which may necessarily be limited by the available time.

In addition to the official programme of the plenary session and the sections, informal meetings on special topics may be arranged.

*Papers.*—Prospective participants who wish to contribute short communications are requested to inform the Organizing Committee by filling in the pertinent items of Form A. The final registration of such communications should reach the Committee *before March 31, 1962*, accompanied by an abstract of 250 words or less.

Papers, including invited lectures and short communications, may be in any language. It is considered, however, that English would be the language comprehensible to the majority of the participants, and the Organizing Committee recommends that papers be presented in English, if possible.

Details concerning the presentation of papers will be announced in the Second Circular.

*Excursion and Post-Symposium Tours.*—During the Symposium an excursion to Nikko National Park will be arranged. After the Symposium, tours to places of historic and cultural interest will be arranged for participants in the Symposium by an authorized travel agent.

Detailed information on these tours will be available later.

*Participation.*—In order that the Organizing Committee may determine the approximate number of participants, it is requested that those scientists who may be interested in attending this Symposium complete the Preliminary Application Form (A) and return it to the Organizing Committee. No obligation will be incurred by doing so. The Second circular containing further details, including information on a tentative program, instructions

to authors of papers, excursions, tours, hotel accommodations, etc., will be forwarded about October, 1961, to all persons who have returned the Preliminary Application Form.

Interested observers as well as actual participants are cordially invited.

#### *Officers of the Organizing Committee*

Chairman: SAN-ICHIRO MIZUSHIMA, University of Tokyo

General Secretary: YONEZO MORINO, University of Tokyo

All inquiries concerning the Symposium should be addressed to:

The Secretary, Organizing Committee, International Symposium on Molecular Structure and Spectroscopy, Science Council of Japan, Ueno Park, Tokyo, Japan.

## **INTERNATIONAL SYMPOSIUM ON PHARMACEUTICAL CHEMISTRY**

The International Symposium on Pharmaceutical Chemistry, which is to be held in Firenze (Italy), on Monday 17, Tuesday 18 and Wednesday 19 September 1962, is organized by the Società italiana di Scienze farmaceutiche under the sponsorship of IUPAC.

Scientists of the following countries: France, Germany, Italy, Switzerland, United Kingdom, USSR, USA have been invited to give lectures of 45 minutes each and will be followed by discussion. No provision will be made for sections.

Lectures will be given in the following fields:

- (1) The regulation of the chemical processes within the living cell
- (2) Drug action in chemical terms
- (3) The chemistry of hormonoactive peptides
- (4) The chemistry of alkaloids
- (5) Drugs active on the nervous system
- (6) The chemistry of antibiotics (preferably of antibiotics endowed with antimitotic action)
- (7) Chemotherapeutic agents (preferably drugs endowed with antiviral and antimitotic action)

To date the following scientists have agreed to give a lecture:

Prof. F. BERGEL (London): "Attempts at chemotherapy of Cancers and Virus Diseases"

Prof. D. BOVET (Rome): "Synthetic Drugs Active on the Central Nervous System"

Prof. TH. BUCHER (Marburg): "Koordination chemischer Prozesse innerhalb der lebenden Zelle"

Prof. H. R. ING (Oxford): "Drug-receptor interaction"

Prof. M. M. SHEMYAKIN (Moscow): "Synthetic Approaches to the Relation between Structure and Activity of Some Antibiotics"

The Organizing Committee is still awaiting the title of the lecture from Prof. BATTERSBY (Bristol), Prof. FOLKERS (USA), Prof. HOFMANN (USA), Prof. JANOT (France), Dr. E. JUCKER (Switzerland), Prof. SCHWYZER (Switzerland), Prof. WIELAND (Germany) and of others.

If, after this programme has been established, there should be any important discoveries made, these will be included. A fourth day has already been reserved for the most recent events.

The SISF holds that the contents of the lectures, communications and discussions are of great scientific interest and therefore IUPAC will publish the Symposium in the Journal "Pure and Applied Chemistry".



A reception will be held in Palazzo Vecchio attended by the State Authorities and a post-symposium one-day excursion to Siena and San Gimignano will be organized.

For further information, please contact Prof. ALBERTO SOLDI, General Secretary, Società italiana di Scienze farmaceutiche, Via Giorgio Jan 18, Milano, or the Secretary General of IUPAC.

## THE ROYAL SOCIETY

### *British National Committee for Chemistry*

#### **Progress Report on the Organization of the XIXth International Congress of Pure and Applied Chemistry**

The Congress is to be held in London from 3–9 July, 1963, and planning is on the basis of about 3000 participants. A preliminary announcement will be made in September soon after the Montreal meeting. The First Circular containing an outline of general scientific programme will be despatched in March 1962 and the Second and Third Circulars in October 1962 and March 1963 respectively.

It is hoped that the Congress will be held under Royal Patronage. Prof. Sir ALEXANDER TODD is to be President and it is proposed to invite Prof. Sir CYRIL HINSHELWOOD and Prof. Sir ROBERT ROBINSON to be Vice-Presidents. A General Committee is to be constituted, the composition of this will be announced early in 1962.

Arrangements so far have been in the hands of an Executive Committee under the Chairmanship of Prof. E. R. H. JONES, with Colonel F. J. GRIFFIN as Honorary Secretary and Prof. Sir CHARLES DODDS as Treasurer. The other members of the Executive Committee are Dr. J. S. ANDERSON, Dr. D. C. MARTIN, Mr. J. R. RUCK KEENE, Dr. E. L. STREATFIELD and Dr. H. W. THOMPSON. A Scientific Committee under Dr. J. S. ANDERSON with Mr. J. R. RUCK KEENE as Secretary has just been constituted and has begun to consider the scientific programme of the Congress. Sir CHARLES DODDS is Chairman of the Finance Committee and Dr. STREATFIELD is in charge of the Tours and Visits Committee which will soon meet for the first time. Lady TODD has consented to organize the Ladies' Committee. Travel and hotel accommodation arrangements have been put in the hands of Messrs. Thomas Cook & Sons Ltd., but in addition it is proposed to arrange as much hostel accommodation as possible.

Arrangements are in hand for an opening ceremony on Wednesday, 3 July, for a Congress banquet on Monday or Tuesday, 8 or 9 July, and for a variety of other social events. The possibility of holding a simultaneous exhibition of scientific equipment is being explored. Accommodation for scientific meetings is providing major problems—again the deficiency of London as a conference centre is being sadly revealed. For major lectures at which 1000–2500 members might be expected, the possibility of using theatres and cinemas in the mornings is being carefully examined and a final decision concerning the Conference centre has had to be deferred until all aspects of the accommodation problem have been looked at. E.R.H.J.

16 May 1961.



# CALENDAR

1961

## September

- |       |   |         |
|-------|---|---------|
| 4- 8  | XXI <sup>e</sup> Congrès des Sciences pharmaceutiques (Prof. A. E. VITOLO, Piazza F. Carrara 10, Pise/Italie)   | Pise    |
| 4- 8  | 140th annual national Meeting of the American Chemical Society—11th National chemical Exposition (J. J. DOHENY, National Chemical Exposition, 86 East Randolph Street, Chicago 1, Ill./USA) | Chicago |
| 18-23 | Hauptversammlung der Gesellschaft Deutscher Chemiker (Haus der Chemie, Karlstr. 21, Frankfurt/M./Germany)   | Aachen  |

## October

- |       |  |      |
|-------|--|------|
| 12-14 | Chemikertreffen Wien (Verein Österreichischer Chemiker, Eschenbachgasse 9, Wien 1) | Wien |
|-------|--|------|

## November

- |      |   |       |
|------|---|-------|
| 4- 5 | Meeting of the Joint Commission on Applied Radioactivity (Dr. H. SELIGMAN, International Atomic Energy Agency, Kärntnerring 11, Vienna 1/Austria) | Basle |
|------|---|-------|

1962

## April

- |      |   |            |
|------|---|------------|
| 3- 5 | Symposia on 'The Transition State'<br>'Some Aspects of the Chemistry of Natural Phenols'<br>'Reactivity and Structure in Inorganic Chemistry' (The General Secretary, The Chemical Society, Burlington House, Piccadilly, London W.1) | Sheffield  |
| 9-12 | Feigl Anniversary Symposium, Society for Analytical Chemistry (M. L. RICHARDSON, c/o John & E. Sturge, Ltd., Lifford Chemical Works, Lifford Lane, Kings Norton, Birmingham, 30/UK)   | Birmingham |

## May

- |   |   |       |
|---|---|-------|
| 2 | 14th International Symposium on Crop Protection (Prof. J. VAN DEN BRANDE, Institut agronomique de l'Etat, 233, Coupure Gauche, Ghent/Belgium) | Ghent |
|---|---|-------|

## June

- |       |   |          |
|-------|---|----------|
| 4- 8  | 12th Annual Meeting of the Société de Chimie Physique (Prof. G. EMSCHWILER, Ecole supérieure de Physique et Chimie, 10, rue Vauquelin, Paris-5 <sup>e</sup> ) | Paris    |
| 12-15 | 75th Anniversary of the Société chimique de Belgique. Symposium on Organic Chemistry (Comité national de Chimie, Palais des Académies, Brussels/Belgium)      | Brussels |

<i>June</i>		
25-29	International Conference on Co-ordination Chemistry (Prof. L. G. SILLÉN, Royal Institute of Technology, Kemistvägen 37, Stockholm 70/Sweden)	Stockholm
	Meeting of the Sub-Committee on Organometallic Compounds	Copenhagen
<i>July</i>		
25-28	Commemoration Symposium of the 50th Anniversary of the discovery by Prof. M. v. LAUE of the diffraction of X-rays by crystals (Prof. F. BOPP, Institut für theoretische Physik der Universität, Geschw.-Scholl-Platz 1, Munich 22/Germany)	Munich
<i>August</i>		
26-29	Symposium on the Chemistry of Natural Products (Prof. F. ŠORM, Institute of Chemistry, Czechoslovakian Academy of Sciences, Na cvicisti 2, Prague 6/Czechoslovakia)	Prague
<i>September</i>		
10-15	Symposium on molecular Structure and Spectroscopy (Prof. S. MIZUSHIMA, 698, 2-chome, Tamagawa-Denenchofu, Setagaya-ku, Tokyo/Japan)	Tokyo
13-14	British Nuclear Energy Conference. Symposium on the Advanced Gas-Cooled Reactor (The Secretary, B.N.E.C., 1-7 Great George Street, London S.W. 1)	London
17-19	International Symposium on Pharmaceutical Products (Prof. A. SOLDI, Società Italiana di Scienze farmaceutiche, Via Giorgio Jan 18, Milan/Italy)	Florence
<i>Undecided</i>		
	Conference on Radioisotopes in the Biological Sciences (International Atomic Energy Agency, Kärntnerring 11, Vienna 1/Austria)	?
	Symposium on the Use of Radioisotopes in Micro-neurophysiology (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland)	Cambridge?

### 1963

<i>July</i>	XXIIInd Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland)	London
<i>July</i>	XIXth International Congress of Pure and Applied Chemistry (Organizing Committee, XIXth International Congress of Pure and Applied Chemistry, 14 Belgrave Square, London S.W. 1, GB)	London

## 1964

<i>July</i>		
20-25	3rd International Congress on Catalysis (Prof. J. H. DE BOER, Staatsmijnen in Limburg, Central Laboratorium, Geleen/Holland)	Amsterdam
<i>August</i>		
4-10	5th International Symposium on the Reactivity of Solids (Prof. G.-M. SCHWAB, Sophienstr. 11, Munich/Germany)	Munich
<i>September</i>		
?	Symposium on Natural Products (Prof. MUNIO KOTAKE, Suita Kenkyujo, 646, Katayaka Suita, Osaka/Japan)	Japan

### British National Committee for Chemistry

*Symposia and Discussion Meetings open to chemists from abroad  
(without sponsorship of IUPAC)*

## 1961

<i>September</i>		
28-29	'Oxidation Processes in Chemical Manufacture', Symposium of London Section of the Society of Chemical Industry, 14 Belgrave Square, London S.W.1. 'Recent Developments in Processing Cereals', Food Group of S.C.I.	London
<i>October</i>		
5- 6	Colloquium on 'The Biochemistry and Biophysics of Phospholipids and Sulpholipids' (joint meeting of the British Biophysical Society and the Biochemical Society, address as above)	School of Pharmacy University of London

## 1962

<i>April</i>		
9-13	6th Congress of the International Society for Fat Research (information from the Society of Chemical Industry, 14 Belgrave Square, London S.W.1)	London
<i>June</i>		
26-28	Symposium on the 'Physics and Chemistry of High Pressures' (information from Society of Chemical Industry)	London
<i>September</i>		
18-21	1st International Congress of Food Science and Technology (information from Society of Chemical Industry)	London

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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 15**

**FEBRUARY, 1962**

**SECRETARY GENERAL:**

**Dr. R. Morf, c/o F. Hoffmann-La Roche et Cie., SA, Basle 2 (Switzerland)**

**Butterworth Scientific Publications · London**



UNION INTERNATIONALE DE CHIMIE PURE ET APPLIQUÉE  
INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY

**BUDGET 1962**  
**BUDGET ESTIMATE 1963**





# **I. INCOME** (*based on figures for 1961*)

A. Total regular income: annual subscriptions from national adhering organisations.

	\$
Argentina . . . . .	450
Australia . . . . .	800
Austria . . . . .	450
Belgium . . . . .	2600
Brazil . . . . .	800
Bulgaria . . . . .	450
Canada . . . . .	2600
China (Taiwan) . . . . .	800
Columbia . . . . .	450
Czechoslovakia . . . . .	800
Denmark . . . . .	1600
Finland . . . . .	450
France . . . . .	2600
Germany . . . . .	5000
Great Britain . . . . .	10000
Hungary . . . . .	450
India . . . . .	450
Ireland . . . . .	100
Israel . . . . .	800
Italy . . . . .	2600
Japan . . . . .	2600
Luxembourg . . . . .	100
Holland . . . . .	2600
Norway . . . . .	800
Poland . . . . .	800
Portugal . . . . .	450
Rumania . . . . .	450
Spain . . . . .	800
Sweden . . . . .	2600
Switzerland . . . . .	2600
South Africa . . . . .	800
Turkey . . . . .	450
United Arab Republic . . . . .	450
USA . . . . .	10000
USSR . . . . .	2600
Yugoslavia . . . . .	450
Total . . . . .	<u>62800</u>

B. Voluntary contributions (only valid for 1961)

	\$
1. France . . . . .	4000
2. Charbonnages de France . . . . .	500
3. Germany . . . . .	1001
4. Great Britain . . . . .	10941
5. USA . . . . .	20000
6. URSS . . . . .	6615
Total . . . . .	<u>43057</u>

## II. EXPENDITURE

		Meetings 1962		XXIInd Conference London 1963		Administrative Expenses	
		Travel expenses	Sub-sistence allowances	Travel expenses	Sub-sistence allowances	1962	1963
I.	<i>Physical Chemistry Section</i>	\$	\$	\$	\$	\$	
	<i>Section Committee</i> . . . . .	—	—	2 055	756	—	
I.1	Commission on Physico-Chemical Symbols and Terminology .	—	—	918	540	—	
I.2	Commission on Thermodynamics and Thermochemistry . . . . .	—	—	1 532	540	—	
I.3	Commission on Electrochemistry . . . . .	—	—	1 654	756	—	
I.4	Commission on Macromolecules	—	—	2 215	540	—	
I.5	Commission on Physico-Chemical Data and Standards .	—	—	2 089	540	—	
I.6	Commission on Molecular Structure and Spectroscopy .	2 600	252	2 124	540	—	
I.7	Commission on Colloid and Surface Chemistry . . . . .	ca.2 500	288	ca.2 500	—	—	
I.8	Joint Commission on Applied Radioactivity (transitory payment, subject to reimbursement by ICSU) . . . . .	2 444	360	—	—	—	
	<i>Blockgrants</i>						
	Symposia I.6 in Tokyo (Japan)	3 000	—	—	—	—	
	I.2 in Lund 1963 (Sweden) . . . . .	3 000	—	—	—	—	
	Meetings I.6 in Tokyo*	—	—	—	—	—	
	I.7 in ■■■■ . . . . .	—	—	—	—	—	
	I.8 in Vienna . . . . .	—	—	—	—	—	
* Transferred payment: calculated for London, but meeting in Tokyo							
	<i>Administrative Expenses</i> . . . . .	—	—	—	—	100	
	"Bulletin of Thermodynamics and Thermochemistry" . . . . .	—	—	—	—	1 000	1 000
	<b>Total</b> . . . . .	<u>13 544</u>	<u>900</u>	<u>15 087</u>	<u>4 212</u>	<u>1 100</u>	<u>1 100</u>
II.	<i>Section of Inorganic Chemistry</i>						
	<i>Section Committee</i> . . . . .	—	—	1 625	756	—	
II.1	Commission on Atomic Weights	—	—	1 097	648	—	
II.2	Commission on the Nomenclature of Inorganic Chemistry	2 057	360	3 392	1 080	—	
II.3	Commission on High Temperatures and Refractories . . . . .	—	—	2 355	972	—	
II.4	Commission on Geochemistry .	3 000	360	—	—	—	
	<i>Blockgrants</i>						
	Symposia II.2. in Stockholm .	3 000	—	—	—	—	
	Meetings II.2.1 in Copenhagen	—	—	—	—	—	
	II.2.2 and II.2.3 in Copenhagen	—	—	—	—	—	
	II.4 in ■■■■ . . . . .	—	—	—	—	—	
	<i>Administrative Expenses</i> . . . . .	—	—	—	—	100	
	<b>Total</b> . . . . .	<u>8 057</u>	<u>720</u>	<u>8 469</u>	<u>3 456</u>	<u>100</u>	<u>1 100</u>

<i>Section of Organic Chemistry</i>						
<i>Section Committee</i> . . . . .	-	-	2 090	540	-	-
1 Commission on the Nomenclature of Organic Chemistry .	1 205	288	839	324	-	-
2 Commission on Codification, Ciphering and Punched Card Techniques . . . . .	-	-	1 078	216	-	-
<i>Blockgrants</i>						
Symposia Bruxelles . . . . .	2 000	-	-	-	-	-
Prague . . . . .	4 000	-	-	-	-	-
Florence . . . . .	3 000	-	-	-	-	-
Meetings III.1 in Copenhagen	-	-	-	-	-	-
<i>Administrative Expenses</i>						
For copying the new rules . .	-	-	-	-	250	250
Total . . . . .	<u>10 205</u>	<u>288</u>	<u>4 007</u>	<u>1 080</u>	<u>250</u>	<u>250</u>
<i>Section of Biological Chemistry</i>						
<i>Section Committee</i> . . . . .	-	-	1 188	432	-	-
Commission on the Nomenclature of Biological Chemistry	1 580	360	1 260	864	-	-
Commission on Proteins . . .	1 919	360	1 795	756	-	-
Commission on Clinical Chemistry . . . . .	1 679*	252	-	-	-	-
(Detroit: President) . . . . .	530	72	-	-	-	-
Meetings IV.1 in Prague . . .	-	-	-	-	-	-
IV.2 in Bruxelles . .	-	-	-	-	-	-
IV.3 in Detroit	-	-	-	-	-	-
*Transferred payment: calculated for London, but meeting in Detroit	-	-	-	-	-	-
<i>Administrative Expenses</i> . . .	-	-	-	-	360	360
Total . . . . .	<u>5 708</u>	<u>1 044</u>	<u>4 243</u>	<u>2 052</u>	<u>360</u>	<u>360</u>
<i>Section of Analytical Chemistry</i>						
<i>Section Committee</i> . . . . .	-	-	3 036	756	-	-
Commission on Analytical Reactions . . . . .	-	-	2 610	648	-	-
Commission on Microchemical Techniques . . . . .	-	-	1 697	864	-	-
Commission on the Nomenclature of Analytical Chemistry	-	-	1 234	432	-	-
Commission on Spectrochemical and other Optical Procedures .	-	-	1 809	756	-	-
Commission on Electrochemical Data . . . . .	-	-	1 051	648	-	-
Commission on Equilibrium Data . . . . .	-	-	3 114	864	-	-
<i>Administrative Expenses</i> . . .	-	-	-	-	1 200	1 200
Total . . . . .	<u>-</u>	<u>-</u>	<u>14 551</u>	<u>4 968</u>	<u>1 200</u>	<u>1 200</u>

# VI. *Applied Chemistry Section*

<i>Section Committee</i> . . . . .	—	—	1 589	540	—
VI.1 Food Division . . . . .	668	144	901	756	—
VI.2 Fermentation Division . . . . .	2 332	324	1 837	864	—
VI.3 Oils and Fats Division . . . . .	—	—	571	648	—
VI.4 Water, Sewage and Industrial Wastes Division . . . . .	579	108	871	540	—
VI.5 Toxicology and Industrial Hygiene Division . . . . .	—	—	2 117	648	—
VI.6 Pesticides Division . . . . .	—	—	2 181	648	—
VI.7 Plastics and High Polymers Division . . . . .	—	—	1 619	756	—
VI.8 Organic Coatings Division . . . . .	1 283	288	1 047	648	—
VI.9 Pulp, Paper and Board Division Meetings VI.1.1 in Paris . . . . .	—	—	1 241	648	—
VI.1.2 in London . . . . .	—	—	—	—	—
VI.2 in Paris . . . . .	—	—	—	—	—
VI.8 in Munich . . . . .	—	—	—	—	—
<i>Administrative Expenses</i>					
Section . . . . .	—	—	—	—	300
Oils and Fats Division . . . . .	—	—	—	—	600
Survey of Food Additives . . . . .	—	—	—	—	2 100
Compilation of reports by Or- ganic Coatings Division . . . . .	—	—	—	—	300
Total . . . . .	4 862	864	13 974	6 696	3 300

## *Administrative-, Travel- and Subsistence-Expenses*

	1962	1961
Finance Committee . . . . .	1 500	1 100
Verkadé Committee . . . . .	1 500	1 100
President . . . . .	1 800	2 000
Treasurer		
Royal Society } . . . . .	300	300

## General Secretariat:

### a) *Travel expenses, Secretary General*

2 × America Economy . . . . .	972		
2 × 200 Expenses . . . . .	400		
4 × London . . . . .	360		
1 × Bruxelles . . . . .	60		
2 × Paris . . . . .	100	1 890	1 100

### b) *General Secretariat*

Clerical assistants . . . . .	5 300		
Clerical assistant for English language . . . . .	3 000		
Insurances for clerical assistants . . . . .	1 000	9 300	9 300
Übertrag . . . . .		16 290	16 290



Übertrag . . . . .	16 290	16 490
<i>Office Expenses</i>		
Rent for premises . . . . .	930	
Postage fees . . . . .	1 400	
Phone calls . . . . .	130	
Cables . . . . .	300	
Stationery, stencils, office material . . . . .	1 700	
Technical services, printing . . . . .	155	
Photocopies . . . . .	100	
Translations . . . . .	465	5 180
Bureau Meetings (Bruxelles and London) . . . . .	6 737	6 780
Section Presidents Meeting in London . . . . .	506	506
Editorial Board (Bruxelles and London) . . . . .	2 062	2 531
Scientific Editor . . . . .	1 500	2 500
Butterworths . . . . .	■ ■ ■ ■	■ ■ ■ ■
Comptes Rendus . . . . .	4 500	—
Information Bulletin . . . . .	3 000	4 000
Taxes GB . . . . .	1 200	1 200
2% ICSU-Contribution . . . . .	1 600	1 600
	<u>42 575</u>	<u>40 787</u>
Section I . . . . .	15 544	20 399
Section II . . . . .	8 877	12 025
Section III . . . . .	10 743	5 337
Section IV . . . . .	7 112	6 655
Section V . . . . .	1 200	20 719
Section VI . . . . .	8 944	21 870
	<u>52 420</u>	<u>87 005</u>
<i>General Expenses</i> . . . . .	42 575	40 787
<i>Expenses</i> . . . . .	<u>94 995</u>	<u>127 792</u>
<i>Grand Total</i> . . . . .		

### Realistic Budget

was requested to present a "realistic budget". This should take into account and indicate under Income and Expenditure all the voluntary contributions such as that made by the President of IUPAC, by various organisations, like the Royal Society, travel support provided by countries that may do so in their own currencies, and the support given by Swiss chemical companies for the office of the Secretary General. All these contributions and grants should be posted as income to IUPAC with an appropriate offsetting charge in the expense column. These figures – representing a substantial amount – will be given in every detail at the next Bureau Meeting in Brussels.



## INTRODUCTION

We, in the secretariat, have made a great effort to have the Comptes Rendus of the 21st Conference in Montreal ready by the beginning of this year. Owing to the fact that many Divisions and Commissions did not meet in Montreal for financial reasons, it has proved to be extremely difficult to establish a complete list of the membership of the Union. The appearance of the Comptes Rendus has also been delayed by the necessity (see Statutes 1957) of obtaining agreement from the appropriate adhering organization before the election of a titular member can be regarded as final.

For this reason, Information Bulletin No. 15 has been published earlier than was originally planned. During an informal discussion with the secretaries and representatives of national adhering organizations which was held in Montreal in August 1961, it was agreed that all news which might be interesting to these organizations should be published in the Information Bulletin. It seems therefore, that it would be in the general interest to print all the suggestions, which were made with regard to the terms of reference of the Verkade Committee, in Information Bulletin No. 15. It would also appear necessary that the budget for 1962 and the draft budget for 1963 be given wide publicity early in the year.

1962 is a non-conference year and the main task of IUPAC will therefore be to establish such a structure that we can meet the exigencies of the next 10 years. It is clear, I think, that only a very strong international organization can prevent the creation of a multitude of bodies which cover only a limited field of chemistry and are, surely, undesirable if only from the point of view of waste of money and time and duplication of work.

It is my view that changing the Statutes will serve no useful purpose unless efficiency and speed of action are improved at the same time. On looking through the Comptes Rendus of previous meetings, I found some similar sentiments expressed by our most eminent Past-President, Professor A. TISELIUS, in the following words:

"One difficulty in the operation of our Union, in comparison with most of the other Scientific Unions, is the great practical and industrial importance of chemistry. This sounds like a paradox, but during my term as president I have often had reason to reflect on this. There must be, owing to the importance of Chemistry for the well-being of mankind, a large number of questions of an obviously international character which are never referred to the Union. If a question requiring collaboration between different nations is important enough, and especially if industrial interests are involved, many chemists prefer to take a direct route and write to their colleagues abroad, perhaps to form a small committee which does not belong to any recognized organization of international character. In one or two specific cases, which have come to my knowledge, I have asked why the already-existing channels in our Union were not used. The reply was that results come faster by the direct route, but of course there is gratitude for our approval—afterwards. I think one has to be realistic about this question, even if it sometimes leads to the Union having to take responsibility for the less interesting affairs, which nevertheless somebody has to care for."

The Section Presidents at their next meeting in London and the Bureau, which will be convened on the occasion of the symposium in Brussels, have a very difficult task before them and the details given in this Bulletin will serve as a basis for these discussions.

## INTRODUCTION

Notre secrétariat a fourni un grand effort pour que les Comptes rendus de la 21<sup>e</sup> Conférence de Montréal paraissent au début de cette année. De nombreuses Divisions et Commissions n'ayant pas eu de réunion à Montréal, il a été extrêmement difficile d'établir une liste complète des membres de l'Union internationale de Chimie pure et appliquée. La parution des Comptes rendus a également été retardée par la nécessité d'obtenir l'accord des Organismes adhérents intéressés avant de pouvoir considérer comme définitive l'élection d'un membre titulaire (voir statuts 1957).

Ce retard nous a incités à faire paraître le Bulletin d'Information n° 15 plus tôt que prévu. Au cours d'une discussion libre, à laquelle participèrent à Montréal en août 1961 les secrétaires et les délégués des Organismes nationaux adhérents, il a été souhaité que toute nouvelle susceptible d'intéresser ces organismes paraisse dans le Bulletin d'Information. Il semble donc qu'il soit dans l'intérêt général de publier dans le Bulletin d'Information n° 15 toutes les suggestions qui ont été faites en rapport avec les tâches du Comité Verkade. Il paraît également indiqué de publier tôt dans l'année le budget pour 1962 et le budget provisoire pour 1963.

1962 n'étant pas une année de Conférence, la tâche principale de l'IUPAC consistera à établir une nouvelle structure qui puisse répondre aux exigences des dix années à venir. Il est évident, me semble-t-il, que seule une organisation internationale puissante peut empêcher la création d'une multitude de sociétés dont l'activité ne s'étend que sur un domaine limité de la chimie. L'existence de telles sociétés n'est pas souhaitable compte tenu des seules dépenses qu'elles entraînent, du temps qu'elles requièrent pour un travail souvent fait à double.

A mon avis, une modification des statuts se révèle inutile si l'on ne cherche pas en même temps à améliorer l'efficacité et la rapidité d'action. En parcourant les Comptes rendus des Conférences précédentes, j'ai remarqué qu'un de nos éminents anciens présidents, le Prof. A. TISELIUS, avait éprouvé les mêmes sentiments à cet égard. Il s'exprimait de la manière suivante:

«Une difficulté dans le travail de l'Union – comparée à la plupart des autres Unions scientifiques – c'est le grand développement pratique et industriel de la chimie. Ceci a l'air d'un paradoxe, mais pendant ma période de présidence j'ai souvent eu l'occasion d'y réfléchir. C'est évident que la chimie est d'une si grande importance pour le bonheur de l'humanité qu'un grand nombre de questions d'un caractère manifestement international sont traitées, sans que l'Union y soit mêlée, ou même en soit informée. Si une question, exigeant la collaboration de différentes nations est assez importante – et singulièrement si des intérêts industriels sont en jeu – beaucoup de chimistes préfèrent emprunter la voie directe en correspondant avec leurs collègues de l'étranger, peut-être en formant de petits comités n'appartenant à aucune organisation de caractère international. Dans un ou deux cas spéciaux dont j'ai eu connaissance, j'ai demandé pourquoi les moyens déjà existants dans notre Union ne furent pas utilisés. La réponse fut qu'on parvient plus vite à un résultat par la voie directe, mais évidemment, on est reconnaissant de notre approbation – après. Je pense que nous devons être réalistes en ces circonstances, même si parfois, cela obligeait l'Union à prendre la responsabilité d'affaires d'un moindre intérêt, dont toutefois quelqu'un doit se charger.»

Les Présidents de Sections qui se réuniront à Londres, ainsi que le Bureau, qui a été convoqué à l'occasion du Symposium de Bruxelles, ont devant eux une tâche très difficile à accomplir.



## DETAILS OF SYMPOSIA

### **Société chimique de Belgique / International Symposium on Organic Chemistry**

On the occasion of the 75th anniversary of its foundation, the *Société chimique de Belgique* requests the honour of your attendance to the International Symposium on Organic Chemistry of Natural Products, Steroids and Polypeptides excluded, which will be held from 12 to 15 June, 1962, at the "Université libre de Bruxelles".

*Mailing address:* Correspondence relating to the Symposium should be addressed to the

**Secrétariat du Symposium international de Chimie organique**

**50, square Marie-Louise, Bruxelles 4**

*Telephone* (02) 18 44 40

*Cable address*

Fechimie-Bruxelles

### **Sections of the Symposium**

Proceedings will be divided into 5 sections operating simultaneously:

- (1) *Determination of the structure of new natural products*  
Work completed or near completion. Controversial structures.
- (2) *Methods used for the determination of chemical structures. Recent contributions*  
Analytical methods and chemical degradations. Physical methods. Stereochemical investigations (configurational and conformational).
- (3) *Syntheses and chemical reactions* (excluding degradation reactions)  
Stereospecific or highly stereoselective syntheses. Stereospecific reactions.
- (4) *Biosynthetic theories and their experimental verifications*  
New hypotheses. Extensions of classical theories. Experimental studies. Controversial theories.
- (5) *Mode of action of natural products in biological processes*  
Experimental studies. Interpretation of experimental data.

It is reminded that themes related to steroids and polypeptides are excluded from the programme of the Symposium.

### **Symposium Headquarters (11-15 June)**

11 June, 2.00 p.m. to 9.00 p.m.

*Maison des Industries chimiques de Belgique*, 50, square Marie-Louise, Bruxelles 4.

From Tuesday 12 June to Friday 15 June, 8.30 a.m. to 6.30 p.m.

*Université libre de Bruxelles*, 50, av. Franklin-Roosevelt, Bruxelles 5.

### **Programme**

*Monday, 11 June*

*Maison des Industries chimiques de Belgique*, 50, square Marie-Louise

- 2.00 p.m.—  
 8.00 p.m. Registration  
 6.00 p.m.— Informal Reception by the “Fédération des Industries chimiques de Belgique”  
 8.00 p.m.

*Tuesday, 12 June*

Université libre de Bruxelles, 50, av. Franklin-Roosevelt

- 8.30 a.m.—  
 6.30 p.m. Registration  
 10.00 a.m. Opening academic Session. Plenary lecture by Mr. R. B. WOODWARD (Harvard University, USA)  
 2.30 p.m.—  
 5.00 p.m. Proceedings in the various sections  
 5.15 p.m. Plenary lecture by Sir ALEXANDER TODD (Cambridge University, UK): “*The ostreogricin antibiotic*”

*Wednesday, 13 June*

Université libre de Bruxelles

- 9.00 a.m. Plenary lecture by Mr. K. BIEMANN (Massachusetts Institute of Technology, USA): “*The application of mass spectrometry in the determination of the structure of natural products*”  
 10.15 a.m.—  
 12.30 p.m. Proceedings in the various sections  
 2.00 p.m.—  
 5.00 p.m. Proceedings in the various sections  
 5.15 p.m. Plenary lecture by Mr. V. PRELOG (Eidgenössische Technische Hochschule, Schweiz): “*Über die Stereospezifität der enzymatischen Reduktionen von Carbonyl-Gruppen*”  
 7.30 p.m.—  
 9.30 p.m. Reception at the Brussels Town Hall

*Thursday, 14 June*

Université libre de Bruxelles

- 9.00 a.m. Plenary lecture by Mr. H. GRISEBACH (Universität Freiburg i.Br., Bundesrepublik Deutschland): “*Hypothesen und Experimente zur Biosynthese der Flavonoide und Makrolide*”  
 10.15 a.m.—  
 12.30 p.m. Proceedings in the various sections  
 2.00 p.m.—  
 5.00 p.m. Proceedings in the various sections  
 5.15 p.m. Plenary lecture by Mr. A. H. BECKETT (Chelsea College of Science and Technology, GB): “*The route from natural products to synthetic drugs*”

*Friday, 15 June*

Université libre de Bruxelles

- 9.00 a.m.—  
 12.30 p.m. Proceedings in the various sections  
 3.00 p.m. Closing Session. Plenary lecture by Mr. G. OURISSON (Université de Strasbourg, France): “*Conclusions générales*”  
 Evening Closing Banquet

- N.B. A simultaneous translation system for Plenary lectures in English, French and German will be provided

## DÉTAILS DU SYMPOSIUM

### Société chimique de Belgique / Symposium international de Chimie organique

A l'occasion du 75<sup>e</sup> anniversaire de sa fondation, la *Société chimique de Belgique* a l'honneur de vous inviter au Symposium international de Chimie organique consacré à l'Etude des produits naturels, à l'exclusion des stéroïdes et des polypeptides, qui se tiendra du 12 au 15 juin 1962 à l'Université libre de Bruxelles.

La correspondance concernant le Symposium sera adressée au

#### Secrétariat du Symposium international de Chimie organique

50, square Marie-Louise, Bruxelles 4

Téléphone (02) 18 44 40

Adresse télégraphique

Fechimie-Bruxelles

#### Sections du Symposium

Les travaux seront répartis en 5 sections appelées à fonctionner simultanément:

- 1<sup>o</sup> *Détermination de la structure de produits naturels nouveaux*  
Travaux terminés ou en voie d'achèvement. Structures controversées.
- 2<sup>o</sup> *Méthodes d'investigation structurale. Apports nouveaux*  
Méthodes analytiques et dégradations chimiques. Méthodes physiques. Etudes stéréochimiques (configurationnelles et conformationnelles).
- 3<sup>o</sup> *Synthèses et réactions chimiques* (à l'exclusion des réactions de dégradation)  
Synthèses stéréospécifiques ou hautement stéréosélectives. Réactions stéréospécifiques.
- 4<sup>o</sup> *Hypothèses biogénétiques et leurs vérifications expérimentales*  
Suggestions nouvelles. Extensions des théories classiques. Etudes expérimentales. Hypothèses controversées.
- 5<sup>o</sup> *Mode d'action des produits naturels dans les processus biologiques*  
Etudes expérimentales. Interprétation des données expérimentales.

Il est rappelé que les travaux se rapportant aux Stéroïdes et aux Polypeptides n'entrent pas dans le cadre du Symposium.

#### Bureau du Symposium (11-15 juin)

Lundi 11 juin, de 14.00 h à 21.00 h

*Maison des Industries chimiques de Belgique*  
50, square Marie-Louise, Bruxelles 4.

Du mardi 12 juin au vendredi 15 juin, de 8.30 h à 18.30 h

*Université libre de Bruxelles*  
50, avenue Franklin-Roosevelt, Bruxelles 5.

## Programme

### *Lundi 11 juin*

Maison des Industries chimiques de Belgique, 50, square Marie-Louise

14.00-20.00 Enregistrement

18.00-20.00 Réception offerte par la «Fédération des Industries chimiques de Belgique»

### *Mardi 12 juin*

Université libre de Bruxelles, 50, av. Franklin-Roosevelt

8.30-18.30 Enregistrement

10.00 Séance académique d'ouverture. Conférence plénière par M. R. B. WOODWARD (Harvard University, USA).

14.30-17.00 Travaux des sections

17.15 Conférence plénière par Sir ALEXANDER TODD (Cambridge University, GB): «*The ostreogricin antibiotic*»

### *Mercredi 13 juin*

Université libre de Bruxelles

9.00 Conférence plénière par M. K. BIEMANN (Massachusetts Institute of Technology, USA): «*The application of mass spectrometry in the determination of the structure of natural products*»

10.15-12.30 Travaux des sections

14.00-17.00 Travaux des sections

17.15 Conférence plénière par M. V. PRELOG (Ecole Polytechnique Fédérale, Suisse): «*Über die Stereospezifizität der enzymatischen Reduktionen von Carbonyl-Gruppen*»

19.30-21.30 Réception à l'Hôtel de Ville de Bruxelles

### *Jeudi 14 juin*

Université libre de Bruxelles

9.00 Conférence plénière par M. H. GRISEBACH (Universität Freiburg i.Br., Bundesrepublik Deutschland): «*Hypothesen und Experimente zur Biosynthese der Flavonoide und Makrolide*»

10.15-12.30 Travaux des sections

14.00-17.00 Travaux des sections

17.15 Conférence plénière par M. A. H. BECKETT (Chelsea College of Science and Technology, GB): «*The route from natural products to synthetic drugs*»

### *Vendredi 15 juin*

Université libre de Bruxelles

9.00-12.30 Travaux des sections

15.00 Séance de clôture. Conférence plénière par M. G. OURISSON (Université de Strasbourg, France): «*Conclusions générales*»

Le soir Banquet de Clôture

N.B. Un système de traduction simultanée des Conférences plénières est prévu en français, allemand et anglais



## II. International Symposium on the Chemistry of Natural Products

*Prague, 27 August to 2 September, 1962, organized under the auspices of the International Union of Pure and Applied Chemistry*

### Scientific programme

The Symposium will be devoted to problems of the constitution, synthesis, and reactivity of isoprenoids and alkaloids; particular attention will be paid to stereochemical questions. Papers dealing merely with the isolation of known compounds or with analytical methods cannot be accepted. Papers of biochemical bias will be considered provided they deal with chemical aspects of the biogenesis of isoprenoids or alkaloids, or the use of biochemical methods for chemical synthesis, with the main emphasis on the chemical aspects.

The programme of the Symposium comprises three groups of papers:

- (a) Contributions in Sections (including two Main Lectures);
- (b) Contributions selected for the individual Colloquia (with Introductory Lectures);
- (c) Special Lectures.

#### (a) Programmes of Sections

Most of the papers will be presented at the sessions of the two Sections (isoprenoids and alkaloids). The programme of each Section will include a Main Lecture:

*"Perspectives in the Chemistry of Terpenes and their Biogenesis"* by LAVOSLAV RUZICKA, and

*"Perspectives in the Chemistry of Alkaloids and their Biogenesis"* by Sir ROBERT ROBINSON.

The Organizing Committee will endeavour to arrange contributions within each Section according to topics. The proceedings of both Sections will be concurrent and will mainly take place in the morning sessions.

#### (b) Programme of Colloquia

The proceeding of the Symposium will in part be organized in colloquia on particular single topics of current or growing importance, chosen after consultation with leading workers in the field. Each colloquium will be introduced by a lecture followed by selected contributions and by discussion. The following Colloquia are scheduled:

*"Total Syntheses of Steroids"* introduced by I. V. TORGOV;

*"Conformational Stereochemistry of Medium Ring Compounds"* introduced by V. PRELOG;

*"Modern Physical Methods in the Chemistry of Natural Products"* introduced by C. DJERASSI;

*"Diterpene Alkaloids"* introduced by L. MARION;

*"Photochemical Transformations of Natural Products"* introduced by D. H. R. BARTON.

#### (c) Special Lectures

Four Special Lectures from the wider field of natural product chemistry will be included in the programme. H. ERDTMAN, M.-M. JANOT, Sir ALEXANDER TODD, and R. B. WOODWARD kindly consented to present these lectures which will be given outside the programme of the Symposium proper, some of them in the evenings.

### *Symposium languages*

Papers may be read in any language. However, for the sake of a smooth course of the Symposium as well as in the interest of the authors themselves, it is recommended that a language should be chosen which will be understood by most of the audience. Lectures delivered in English or Russian—except for the Main and Special Lectures—will simultaneously be translated into the other language.

### *Preliminary schedule of sessions*

#### *Monday, 27 August*

- 10.00 a.m.—
- 11.00 a.m. Opening session
- 11.00 a.m.—L. RUZICKA: "Perspectives in the Chemistry of Terpenes and their Biogenesis"
- 12.00 noon
- 2.00 p.m.—Colloquium on total syntheses of steroids (introduced by I. V. TORGÓV)
- 5.00 p.m.—
- 3.00 p.m.—
- 5.00 p.m. Papers in Sections

#### *Tuesday, 28 August*

- 8.30 a.m.—
- 12.00 noon Papers in Sections
- 2.00 p.m.—Colloquium on conformational stereochemistry of medium ring compounds (introduced by V. PRELOG)
- 5.00 p.m.—
- 3.00 p.m.—
- 5.00 p.m. Papers in Sections
- 7.30 p.m.—
- 8.30 p.m. Special Lecture (M.-M. JANOT)

#### *Wednesday, 29 August*

- 8.30 a.m.—
- 12.00 noon Papers in Sections
- 2.00 p.m.—Colloquium on modern physical methods in the chemistry of natural products (introduced by C. DJERASSI)
- 5.00 p.m.—

#### *Thursday, 30 August*

- 9.00 a.m.—Sir ROBERT ROBINSON: "Perspectives in the Chemistry of Alkaloids and their Biogenesis"
- 10.00 a.m.—
- 2.00 p.m.—
- 5.00 p.m.—Colloquium on diterpene alkaloids (introduced by L. MARION)
- 3.00 p.m.—
- 5.00 p.m. Papers in Sections
- 7.30 p.m.—
- 8.30 p.m. Special Lecture (R. B. WOODWARD)

#### *Friday, 31 August*

- 8.30 a.m.—
- 12.00 noon Papers in Sections
- 2.00 p.m.—Colloquium on photochemical transformations of natural products (introduced by D. H. R. BARTON)
- 5.00 p.m.—
- 3.00 p.m.—
- 5.00 p.m. Papers in Sections

*Saturday, 1 September*

8.30 a.m.—

9.30 a.m. Special Lecture (H. ERDTMAN)

9.30 a.m.—

12.00noon Papers in Sections

*Sunday, 2 September*

10.00 a.m.—

11.30 a.m. Closing session with Special Lecture (Sir ALEXANDER TODD)

The definite programme will be drafted on the basis of the communications submitted.

### **Social events and excursions**

The Second International Symposium on the Chemistry of Natural Products is intended to provide not only an occasion for exchanging views on scientific problems but also opportunities for mutual personal acquaintance of scientists from different countries. A number of social and cultural events will be arranged, including sightseeing tours in Prague (mornings) and its environs (afternoon), theatre performances, concerts, etc. (nights). Prospective participants are requested to mark in Form D events and excursions in which they wish to take part. Morning tours of Prague (SF 1–SF 5) may be booked directly at the Symposium. The post-symposium tours P 5 and P 6 will be arranged by the ČEDOK Travel Agency. Charges for participation in all events (not covered by the registration fee) are payable on registration after arrival, except for tours P 5 and P 6 for which the ČEDOK Agency may require a deposit in advance.

The Organizing Committee will endeavour to assist in meeting the individual wishes of Symposium participants regarding visits to theatres, concerts, etc. other than those listed in the programme. The ČEDOK Travel Agency will be pleased to make arrangements for participants who may wish to extend their stay after the Symposium.

### *Accommodation*

Participants in the Symposium will be accommodated in Prague hotels. Hotel accommodation is relatively inexpensive, even in well appointed establishments. However, in view of the rapidly growing number of visitors, it is not easy to procure accommodation for large numbers of guests. In particular, the Organizing Committee will be short of adequate numbers of single rooms. This is why participants are requested to state whether they are prepared to share a room (cf. Form B).

Prices (in Kčs, i.e. Czechoslovak crowns) are approximately as follows:

	<i>apartments</i>	<i>single bedrooms</i>	<i>double bedrooms</i>
de luxe . . . . .	120	30–50	80
first class . . . . .	—	24	35–60

A limited number of participants can be accommodated in student residences. Such accommodation is inexpensive, but the rooms are plainly furnished, and several persons may have to share a room.

The Organizing Committee cannot accept responsibility for accommodating participants who are late in applying.

### *Meals*

As a rule, though not necessarily, hotels expect the visitors to take some or all meals in their restaurants. Accommodation with full board is about 170 Kčs a day in hotels de luxe, and 110 Kčs in first class hotels. The Organizing Committee will adjust the time-table of lectures as required and will also secure transport for participants who will take the meals in their hotels. Alternatively, meals may be taken in several good restaurants in the neighbourhood of the lecture halls. The price of three meals a day ranges from 25 to 80 Kčs. For part of the participants plain and very inexpensive meals can be arranged for in student dining-halls.

### *Financial matters*

The registration fee is 250 Kčs for active participants and 150 Kčs for persons accompanying them. This entitles the participants to attend all Symposium sessions, to receive the Symposium Handbook and the Abstracts of Papers, and to take part in certain social events as listed above.

The registration fee, as well as the charges for those excursions in which the members may wish to participate, are payable at the Symposium after arrival. Currency exchange facilities of the Czechoslovak State Bank will be available in the registration area.

### *Correspondence*

All correspondence concerning the Symposium should be addressed to: The Chairman, Organizing Committee, II. International Symposium on the Chemistry of Natural Products, P.O.B. 159, Prague 6 – Dejvice (Czechoslovakia).

## **International Symposium on Molecular Structure and Spectroscopy**

*Tokyo, 10–15 September 1962*

*The International Symposium on Molecular Structure and Spectroscopy* organized by the Science Council of Japan will be held at the Akasaka Prince Hotel and the Toshi Center Hall, Tokyo, Japan, during the period of 10–15 September 1962 under the sponsorship of the International Union of Pure and Applied Chemistry with the co-operation of the Japanese learned societies in this field of science.

The symposium will cover infrared, Raman, ultraviolet, visible and micro- and radio-wave spectroscopies, all of which are used in the elucidation of molecular structures. It will be open to all scientists interested in this field and will consist of a plenary session and several section meetings. At the plenary session, lectures will be delivered by specially invited speakers, and at the section meetings, principal lectures and short communications will be given. In addition to these, informal meetings on special topics may be arranged.

The Symposium Office before and after the Symposium is in the Science Council of Japan, Ueno Park, Tokyo, Japan, and during the Symposium the Office will be shifted to the Akasaka Prince Hotel, Akasaka-kioicho, Chiyoda-ku, Tokyo.



General inquiries about the Symposium should be sent to the Secretary, Organizing Committee of the International Symposium on Molecular Structure and Spectroscopy, Science Council of Japan (cable address: Sciencouncil Tokyo).

*Provisional programme*

	Sunday, 9 September
afternoon	Registration at the Akasaka Prince Hotel
	Monday, 10 September
morning	Registration at the Prince Hotel
	Opening of the Symposium
afternoon	Plenary session
evening	Reception by the President of the Science Council of Japan
	Tuesday, 11 September
morning	Section meetings
afternoon	Section meetings
	Wednesday, 12 September
morning	Section meetings
afternoon	Scientific visits and sightseeing in and around Tokyo
	Thursday, 13 September
morning	Section meetings
afternoon	Section meetings
evening	Beer party
	Friday, 14 September
morning	Section meetings
afternoon	Excursion to Nikko
	Saturday, 15 September
	Sight-seeing in Nikko and return to Tokyo

*Plenary session*

The following four general lectures will be given at the plenary session on Monday afternoon

SAN-ICHIRO MIZUSHIMA, The University Tokyo: "Researches on internal rotation in Japan"

H. W. THOMPSON, Oxford University: "Molecular vibrations and some physical chemical problems"

G. HERZBERG, National Research Council of Canada: "Recent work on spectra of free radicals"

E. BRIGHT WILSON Jr., Harvard University: "Recent results of chemical interest from microwave spectroscopy"

*Section meeting*

At the section meetings, principal lectures and short communications will be presented. The following speakers have already consented to give principal lectures. Other principal lectures, including those by some Japanese speakers, will be announced at a later date.

*Session 1* Theoretical

B. CRAWFORD, Jr., University of Minnesota: "Recent developments in normal co-ordinates"

H.C. LONGUET-HIGGINS, Cambridge University: "The optical absorption spectra and Raman spectra of molecules in electrically degenerate states"

- Session 2* Rotation and rotation-vibration spectra  
B. BAK, The University of Copenhagen: "Some molecular structure determinations by microwaves"  
C.C. COSTAIN, National Research Council of Canada: "Microwave spectra of hydrogen bonded molecules"  
R.C. LORD, Massachusetts Institute of Technology: "Rotation-vibration spectra of cyclobutane and other four-membered ring molecules"

- Session 3* Assignment of vibration spectra  
R. MECKE, Universität Freiburg: "Infrarotspektroskopische Untersuchungen über den Ordnungszustand der Moleküle"  
J. LECOMTE, Université de Paris: "Quelques méthodes de mesure et quelques applications de la dispersion des indices de refraction de solides et de liquides dans l'infrarouge"

- Session 4* Electronic spectra  
A. MANGINI, Università di Bologna: "Ultraviolet spectra of some sulphur and oxygen organic compounds"  
R. S. MULLIKEN, University of Chicago: "Recent progress in theoretical computations on electronic states of simple molecules and their spectra"

- Session 5* Unstable molecules  
G.C. PIMENTEL, University of California:  
"Infrared spectral perturbations in matrix experiments"  
W.G. PORTER, University of Sheffield: "Aromatic free radicals"

- Session 6* Internal rotation  
D. HERSCHBACH, University of California: "Internal rotation and microwave spectroscopy"  
N. SHEPPARD, Cambridge University: "The internal rotation of methyl groups as studied by infrared spectroscopy"

- Session 7* Complex organic compounds  
R.N. JONES, National Research Council of Canada: "Comparative studies on the Raman and infrared spectra of steroids and related compounds"  
S. KRIMM, University of Michigan: "Infrared studies of high polymers"

- Session 8* Inorganic compounds  
D.S. McCLURE, R.C.A. Laboratory, Princeton: "Analysis and interpretation of electronic spectra of transition metal ions in crystals"  
F.A. MILLER, Mellon Institute, Pittsburgh: "Infrared and Raman studies on inorganic compounds"

- Session 9* Molecular interaction  
T. FÖRSTER, Technische Hochschule, Stuttgart: "Formation and decomposition of excited dimers"  
A.N. TERENIN: A. A. Zhdanov State University, Leningrad: "Spectral investigation of ion formation in the surface interaction of organic molecules with a solid"

## *Session 10* Techniques and applications

V. A. FASSEL, Iowa State University: "Recent advances in experimental atomic emission spectroscopy"

L. GENZEL, Physikalisches Institut der Universität, Freiburg: "Far infrared experimental techniques"

G. B. SUTHERLAND, National Physical Laboratory, Teddington: "Interference spectroscopy and some of its application in the far infrared and in the near infrared"

## *Membership*

The membership of the Symposium is open to all scientists who have interest in the above mentioned topics. For non-scientist members who accompany scientist members, a programme of visits will be planned.

## *Registration Form and membership fee*

A copy of the Preliminary Registration Form (Form B) should be returned as soon as possible and in any case not later than *31 March, 1962* to the Organizing Committee.

The membership fee is 2500 Yen (approximately \$7) for scientist members and 1500 Yen for associate (non-scientist) members. The payment of the fee should be made at the time of final registration on 9 or 10 September, 1962.

## *Weather and dress*

For the period 10–15 September, the mean daily temperature in Tokyo is 72 °F (22 °C). Variations from this average, however, may be appreciable, and it can be rather hot. Heavy rains may sometimes be expected. Participants, therefore, are advised to bring some light clothing and a rain-coat.

Formal dress will *not* be required.

## **International Symposium on Pharmaceutical Chemistry**

*under the sponsorship of the International Union of Pure and Applied Chemistry (IUPAC) to be held in Florence (Italy)*  
(Monday 17, Tuesday 18 and Wednesday 19 September, 1962)

### *Preliminary programme*

#### *Monday, 17 September*

9.30 a.m.—

10.00 a.m. Opening session

10.30 a.m.—

12.30 p.m. Lectures

3.00 p.m.—

6.00 p.m. Lectures

#### *Tuesday, 18 September*

9.30 a.m.—

12.30 p.m. Lectures

3.00 p.m.—

6.00 p.m. Lectures

8.00 p.m. Official dinner offered by Organizing Committee to the Lecturers and Guests

*Wednesday, 19 September*

9.30 a.m.—

12.30 p.m. Lectures

3.00 p.m.—

5.00 p.m. Lectures

5.00 p.m.—

6.00 p.m. Closing session

9.00 p.m. Reception given by Italian Society of Pharmaceutical Sciences in Palazzo Vecchio and Galleria degli Uffizi

*Thursday, 20 September (optional)*

All day Excursion to Siena, San Gimignano and visit to the "Istituto sieroterapico toscano" in Siena

Half day Visit to the "Istituto farmaceutico militare" in Florence.

The programme will include sixteen lectures of 45 minutes each, followed by discussion. No provision will be made for sections. Simultaneous translation into Italian, French and English languages will be available.

*Main arguments of the lectures will be:* The regulation of the chemical processes within the living cell — Drug action in chemical terms — The chemistry of hormonoactive peptides — The chemistry of alkaloids — Drugs active on the nervous system — The chemistry of the antibiotics — Synthetic chemiotherapeutic agents.

*Fifteen lecturers have already sent their acceptance, namely:*

A.R. BATTERSBY, Dept. of Organic Chemistry, University of Bristol: "Recent Researches on Indole Alkaloids"

F. BERGEL, Chester Beatty Research Inst., Royal Cancer Hospital, London: "Attempts at Chemotherapy of Cancers and Virus Diseases"

D. BOVET, Istituto superiore di Sanità, Roma: "Synthetic Drugs active on the Central Nervous System"

TH. BÜCHER, Physiologisch-Chemisches Institut der Philipps-Universität, Marburg/Lahn: "Koordination chemischer Prozesse innerhalb der lebenden Zelle"

K. HOFMANN, School of Medicine University of Pittsburg: "Structure-Function Relations in the Corticotropin Series"

H.R. ING, Dept. of Pharmacology, University of Oxford: "Drug-Receptor Interaction"

M.-M. JANOT, Faculté de Pharmacie de l'Université de Paris: "Acquisitions récentes dans le domaine des alcaloïdes du *Picralima Nitida*, des *Vinca* et *Malquietia*"

E. JUCKER, Sandoz AG, Basel: "Recent Pharmaceutical Research on Hydrazine Derivatives"

L. MUSAJO, Istituto Chimica farmaceutica, Università di Padova: "Foto-reazioni di Coenzimi Flaviniici"

J. PORATH, Biokemiska Institutionen, Uppsala Universitet: "Some recently developed fractionation procedures and their application to Peptide and Protein Hormones"

P. PRATESI, Istituto Chimica farmaceutica, Università di Pavia: "Struttura chimica e attività biologica delle Catecolamine"

V. PRELOG, Organisch-Chemisches Institut der Eidgenössischen Technischen Hochschule, Zürich: "Iron containing Antibiotics and microbial growth factors"

M.M. SHEMYAKIN and M.N. KOLOSOV, Institute for Biological and Medical Chemistry, Academy of Medical Sciences, Moscow: "Synthetic Approaches to the Relation between Structure and Activity of some Antibiotics"



R. SCHWYZER, Pharmazeutisch-Chemisches Laboratorium der Ciba AG, Basel: "Chemical Structure and Biological Activity in the field of the Polypeptide Hormones"

TH. WIELAND, Institut für Organische Chemie der Johann-Wolfgang-Goethe-Universität, Frankfurt/Main: "Chemical Syntheses and Modifications of Cyclopeptides"

Publication of the Symposium volume: Lectures presented at the Symposium will be published on behalf of IUPAC.

#### *Registration fee and enrolment of Members*

Registration fee for active membership . . . Lit. 12 000 or \$20

Registration fee for associate membership . . . Lit. 8 000 or \$14

(any person accompanying an active member)

Enrolment may be accepted up to the opening date, but all those interested in the Symposium are encouraged to apply for registration *not later than 30 April, 1962*.

After payment of registration fees the Executive Secretary will issue and mail the appropriate membership card.

The card for active membership entitles to participate in all Symposium activities and social events.

The card of associate membership entitles the holders to participate in the social events, to attend the Symposium as auditors only, and to participate to the special programme for the ladies.

Active members will receive the volume of lectures' summaries, at the opening date.

#### *Accommodation*

During September, Florence receives a large number of visitors. It is therefore important that lodgings should be provided as soon as possible. The hotel reservation can be made through Wagons-Lits/Cook, special arrangement for this Symposium.

#### *Information*

For information apply to the Secretary of the Italian Society of pharmaceutical Sciences, Prof. ALBERTO SOLDI, Via Giorgio Jan, 18, Milan (Italy).

*Registration Form and hotel accommodation facilities will be sent on request.*

### **Eighth Latin American Congress of Chemistry**

The Eighth Latin American Congress of Chemistry will be held in Buenos Aires from 16 to 22 September this year. At the same time the 50th Anniversary of the Asociación Química Argentina will be celebrated. The Congress is open to chemists of all nations and those interested can apply for further information from the Secretary, Casilla de Correo 2153, Buenos Aires, Argentina.

## REPORT OF THE EDITORIAL ADVISORY BOARD

Meetings were held at Montreal on 3 and 4 August, 1961.

Present: Dr. H. W. THOMPSON (GB, Chairman), Prof. W. A. NOYES jr. (USA), Sir CHARLES DODDS (GB), Dr. R. MORF (Switzerland), Dr. R. S. CAHN (GB), Dr. E. J. CRANE (USA), Prof. W. KLEMM (Germany), Dr. E. KLEVER (Germany), Prof. V. N. KONDRATIEV (USSR), Prof. M. LETORT (France), Dr. L. MARION (Canada), Prof. A. NASINI (Italy), Sir ALEXANDER TODD (GB), Prof. P. E. VERKADE (Holland), Prof. B. C. L. WEEDON (GB, *Scientific Editor*)

Dr. D. C. MARTIN (GB) attended by invitation, and Messrs. J. WHITLOCK and R. A. WATSON of Butterworths Scientific Publications were present for discussion of certain items.

(1) The Chairman outlined progress since the foundation of the new Journal "Pure and Applied Chemistry". Two complete volumes had now been published and the first issue of volume three was expected to be available during the Montreal Congress. The only manuscripts in hand, namely the papers from the Ghent Symposium, some of those from the Amsterdam Symposium, and the Duyckaerts Commission report, had only recently been received, so that there was now no residual back log. This volume of publication (some 1800 pages) during the first year of the Journal had involved considerable effort by the publishers. Some serious delay had inevitably occurred at the start, but it should be noted that the contract was not signed until June 1960, and also there had been considerable editorial problems with some of the manuscripts supplied. A statement was provided of the current number of subscribers to the Journal and of the sales of reprints of specific articles, reports and symposia. It seemed likely that the earlier estimates of income to the Union in 1961 would be justified, and might provide a substantial contribution to cover other publications such as the Bulletin and Comptes rendus as well as royalty fees. It was felt, however, that in spite of extensive advertising by the publishers, especially to members listed in the Comptes rendus, more publicity was required, and some suggestions were made for this. It was decided to explore the possibility of an annual subscription to the Journal rather than by separate volume.

(2) A scheme was agreed for the distribution of complementary copies of the Journal received by the Secretary General.

(3) It was agreed that as regards the Commission or Division reports, 25 free copies provided under the contract with the publishers should be sent to the President of the Section or Division concerned for distribution at his discretion (e.g. to Commission members). As regards individual papers presented at Symposia, 25 free reprints would be sent to the author (or group of authors), of a given paper. Additional copies of reprints would be obtainable at preferential rates agreed between the publishers and the Editorial Advisory Board. It was decided that these decisions regarding reprints should apply to recent publications.

(4) In the light of experience gained during the past few years, it was decided to open discussions with the publishers regarding a revision of the contract made previously, and representatives of the publishers expressed their readiness to do so.

(5) The Board reaffirmed a previous decision by the Publications Committee and Executive Committee that nomenclature reports should be published in the original language only (any language, at the discretion of

the President of the Section concerned, but normally English, French or German). However, at the request of the President of the Section concerned and with the approval of the Executive Committee, a translation of the whole or part of the report could also be published—in the latter event, the text should indicate which is the official version.

Reports comprising sections in various languages should be published as submitted, the languages used being normally English, French and German, but translations might be prepared at the discretion of the Editor.

Accounts of symposia should normally be in English, French or German. A suitable translation of a contribution in one of the less common languages should, if possible, be provided by the author or by the organizers of the Symposium.

A Commission or Section President desiring a translation should arrange for it to be made, without payment by IUPAC. If the Editor desires a translation he should request the Commission or Section President concerned to arrange it, and if this request is not met the Editor shall have power to arrange translation.

(6) After discussion it was decided that no honorarium can be paid to authors.

(7) The publishers agreed not to claim royalty payment for reprinting of the atomic weight tables by other parties, provided that appropriate acknowledgment is made (i.e. "printed by permission of IUPAC and Butterworths Scientific Publications").

(8) The Biological Chemistry Section has issued *tentative* rules for Symbols, Abbreviations, etc. in the Information Bulletin during 1961, and wished (a) to have these recognized as *definitive* at the Montreal meeting, and (b) that they might be reprinted at once in the scientific journals. It was pointed out that (a) involved procedure contrary to the rules of IUPAC. Moreover Prof. VERKADE reported a decision by the Commission on Nomenclature of Organic Chemistry that the two-year delay imposed by the Statutes was scientifically desirable and he therefore opposed the request. Request (b) involved royalty payments to Butterworths. The Editor and Dr. CAHN were asked to discuss this matter with Butterworths.

(At these subsequent discussions the publishers agreed to claim no royalty for publication of these rules in scientific journals provided that they were labelled *tentative* rules and carried the customary acknowledgment to IUPAC and the publishers, and a formal letter to this effect has now been received. The publishers requested, though not as a condition, that journals publishing these rules should permit a half-page gratis advertisement for IUPAC publications. *Definitive* rules, now or later, should, however, be published in the Journal and be subject to royalty by agreement.)

(9) Dr. CRANE asked to have his view recorded that any royalty for atomic weight tables, nomenclature rules, and similar material was an evil, even if a necessary one.

(10) It was agreed to emphasize again in the Information Bulletin that applications for sponsorship of Symposia must be made to the Secretary General and accompanied by the details listed in Information Bulletin No. 11, and that the decision whether or not IUPAC is to publish the proceedings in whole or in part should be taken before sponsorship is granted.

It was agreed that in order to reach a decision on publication the Secretary General should consult the Chairman of the Editorial Advisory Board and the Editor as soon as the application for sponsorship is received. These three Officers may also seek such further information and opinion as they wish. The Chairman and Editor should then advise the Secretary General whether



they recommend publication by IUPAC if sponsorship is eventually given. The final decision on sponsorship would be taken by the Executive Committee after receipt of this advice. The view was expressed that sponsorship should be given only after careful consideration, and with discretion.

(11) It was agreed that in the case of Symposia, in general only the main invited lectures would be published, but exceptions might be made for other lectures or papers in special cases. The Editor would have the power, after taking such advice as he considered necessary, to reject any material submitted for publication by IUPAC if it did not reach the desired scientific standard.

The Chairman and Editor agreed to draw up, for publication in the Information Bulletin and Journal, appropriate papers giving regulations governing IUPAC publications in general and also details regarding form and conventions for manuscripts, and these papers would be circulated to the Editorial Advisory Board.

(12) It was agreed that the day to day administration of the publication affairs should be conducted by the Chairman, Editor, and the Secretary General. It was further agreed that the Editor should have the power to enlist help in carrying out his duties, provided that any action of this type involving a charge to the Union of more than £100 should have the prior approval of the Honorary Treasurer. Dr. CAHN was also co-opted to the above executive group for advice and assistance.

(13) It was decided that time should be allowed for further experience before a limit be set to the annual size of the Journal.

(14) Decisions on proposed future publications were made as follows:

- (i) that the proceedings of the Brussels 1962 Symposium on Natural Products and the history of the Belgian Chemical Society should not be published by IUPAC;
- (ii) that IUPAC would not be able to agree to the suggestion to publish the main invited lectures of the Stockholm 1962 Symposium on Co-ordinated Chemistry as a bound volume with the abstracts of the other papers, but would publish the main invited lectures as agreed earlier;
- (iii) that the proposed third and fourth volume on Thermochemistry planned by the IUPAC Commission should be published by IUPAC;
- (iv) that the "Bulletin of Thermodynamics and Thermochemistry" should not be published by IUPAC;
- (v) that the 1961 papers of the Wood Symposium, the main lectures of the Macromolecular Chemistry Symposium and plenary lectures of the Montreal Congress should be published, and that a decision as to publication of other papers at the Montreal meeting be made by the Chairman, the Editor and Prof. MARION;
- (vi) that the new edition of "Standard methods for analysis of oils and fats" to be supplied by the Applied Chemistry Section should be published by IUPAC;
- (vii) that the proceedings of a Symposium on Information and Documentation (Milan 1961) should not be published by IUPAC.

(15) It was agreed that the Editorial Advisory Board should meet during the IUPAC Conference in London 1963, and the Executive Committee was asked to consider whether a meeting should be held in Brussels 1962.

(16) A vote of thanks was expressed to the Chairman, Editor and Dr. CAHN for their work for IUPAC publications.

H. W. THOMPSON



## PRESIDENT'S LETTER

11 December, 1961

To all Members of the Bureau:

The Executive Committee of the International Union of Pure and Applied Chemistry at its meeting in Rome on 8 and 9 November 1961 considered the memorandum dated 25 September 1961 relative to the nomination and election procedures to be followed in 1963 before and during the meeting of the Council of the Union. This revision of the memorandum is based on those discussions and comments are invited. It will be sent to all adhering bodies about 1 February 1962, so please send comments to me with copies to Dr. MORF as soon as possible.

It must be remembered that revisions of the Statutes and By-Laws will probably be voted in London prior to the elections. These will undoubtedly be discussed at the meeting of the Bureau in Brussels in June 1962. It is believed that these will not affect these procedures although the lengths of some terms of office and possibly even the titles of some offices may be changed.

Very sincerely yours, W. ALBERT NOYES, Jr., President

## ELECTION PROCEDURE FOR 1963

Elections for the following positions must be held in London in 1963 (an asterisk \* indicates that the present incumbent is not eligible for reelection—\*\* indicates also member of the Executive Committee):

- (1) President [present incumbent: W. A. NOYES, Jr.\* \*\* (USA)]
- (2) Vice-President [present incumbent: GEORGES CHAUDRON (France)]
- (3) Vice-President [present incumbent: W. KLEMM\*\* (Germany)]
- (4) Vice-President [present incumbent: Sir ALEXANDER TODD\*\* (GB)]

Note: One Vice-President should be informally designated as President-elect. The title of Vice-President (President-elect) may be listed in the new Statutes.

- (5) Secretary General [present incumbent: R. MORF\*\* (Switzerland)]
- (6) Honorary Treasurer [present incumbent: Sir CHARLES DODDS\*\* (GB)]
- (7) Member of the Bureau [present incumbent: V. N. KONDRATIEV\*\* (USSR)]
- (8) Member of the Bureau [present incumbent: M. LETORT\*\* (France)]
- (9) Member of the Bureau [present incumbent: D. MAROTTA (Italy)]
- (10) Member of the Bureau (present incumbent: A. R. TOURKY (United Arab Republic))
- (11) Member of the Bureau [present incumbent: P. VERKADE (Netherlands)]

(12), (13) Two past presidents as members of the Bureau. There will be three past presidents (NOYES, STOLL, TISELIUS). Unless an exception is made, TISELIUS will have served for eight years and will not be eligible to continue. A vote will be taken in London to determine whether or not the Council desires the eight-year rule to apply in this case. If not an election must be held. It should be noted that three members of the Bureau elected in Montreal will continue in office until 1965: T. R. GOVINDACHARI (India), C. E. NABUCO DE ARAUJO, Jr. (Brazil), O. WICHTERLE (Czechoslovakia). Also there are six section presidents who are members of the Bureau. These persons are chosen by the Sections and are merely confirmed by the Council. Two now in office will continue until 1965: G. M. SCHWAB (Physical Chemistry, Germany) and H. MALISSA (Analytical Chemistry, Austria).

In making nominations and in voting the following points must be kept in mind:

(1) Only persons should be chosen who are vitally interested in the International Union of Pure and Applied Chemistry and who are willing to devote time to its activities.

(2) The Bureau must faithfully represent all parts of chemistry and all parts of the world. Subject matter and geographical distribution are both important.

The following procedure will be followed in 1963 although it will be modified at the Council meeting in London if new Statutes and By-Laws make this necessary by their adoption before the election:

(1) A separate vote will be taken for each position to be filled.

(2) Adhering bodies represented by delegates present at the Council meeting may cast votes. Voting by correspondence will *not be permissible*.

(3) Each delegation will cast one vote which will be counted as 6 for A countries, 4 for B countries, and 2 for C countries.

(4) Since the voting is secret, ballots must not be signed or indicate in any way the name of the country or the delegate casting the vote.

(5) If only one candidate is nominated for a particular office, the votes will be either "yes" or "no". If the candidate does not receive a majority of "yes" votes, the position will be filled by the Bureau.

(6) A candidate to be elected must receive an absolute majority of the valid votes cast, i.e. he must receive more than half of the votes cast. Abstentions and invalid votes will not be counted in calculating the total votes cast. Should there be more than two candidates nominated for an office and should no one receive a majority on the first ballot, the one receiving the smallest number of votes shall be eliminated and a new vote taken. This will continue until one candidate receives a majority. In the event of a tie vote the President after consultation with the Executive Committee shall cast the deciding vote.

(7) Nominations:

(a) Nominations must be made in writing and addressed to the Secretary General. They must indicate clearly the name of the person nominated, the position for which he is nominated, and be accompanied by a short biographical sketch. Since more than one member of the Bureau is to be elected, the nomination must indicate clearly the name of the present member who would be replaced by the person nominated.

(b) Nominations by national adhering bodies must be made at least two months prior to the start of the Conference (i.e. on or before 15 April 1963).

(c) Nominations may be made at any time prior to the elections by the Bureau (or if necessary by the Executive Committee). This is necessary to ensure at least one candidate for each vacancy.

It is hoped that many distinguished chemists will be nominated for the positions to be filled in 1963. An active organization always is manifest by numerous candidacies.

Adhering bodies should now give serious consideration to candidates for the positions to be filled in 1963. Some persons now holding office may not wish to continue even though eligible. Information on these points should be obtained directly from the persons in question.

Any comments relating to these procedures should be sent as soon as possible to the Secretary General since decision must be made not later than May 1962 on the voting procedure.

(8) Executive Committee. The Council will elect all members of the Bureau. Following the elections the new Bureau will convene to elect the members of the Executive Committee. Ex officio members of the Executive Committee are the President, the Secretary General, and the Honorary

Treasurer. Whether specified in the Statutes or not the person considered to be President-elect should be a member of the Executive Committee. If the term of office of the President is shortened the immediate past president should probably also be a member of the Executive Committee. The Bureau will therefore elect either two or three Bureau members to be members of the Executive Committee if the Executive Committee continues to consist of seven members.

Note: The word "nomination" seems to have different meanings in different countries. As used here the meaning is that in the USA, viz. "to nominate is to propose for election". Thus "nomination" and "election" do not mean the same thing.

W. ALBERT NOYES, Jr., President

## PROCÉDURE D'ÉLECTION POUR 1963

Des élections doivent avoir lieu à Londres en 1963 afin de repourvoir les postes suivants:

- 1° Président (actuellement en charge: W.A. NOYES, Jr\* \*\* [USA])
- 2° Vice-Président (actuellement en charge: G. CHAUDRON [France])
- 3° Vice-Président (actuellement en charge: W. KLEMM\*\* [Allemagne])
- 4° Vice-Président (actuellement en charge: Sir ALEXANDER TODD\*\* [Royaume-Uni])

Remarque: Un des Vice-Présidents devrait être désigné officieusement comme successeur à la présidence. Le titre de Vice-Président (successeur du Président) devrait être mentionné dans les statuts.

- 5° Secrétaire général (actuellement en charge: R. MORF\*\* [Suisse])
- 6° Trésorier (actuellement en charge: Sir CHARLES DODDS\*\* [Royaume-Uni])
- 7° Membre du Bureau (actuellement en charge: V.N. KONDRATIEV\*\* [URSS])

- 8° Membre du Bureau (actuellement en charge: M. LETORT\*\* [France])
- 9° Membre du Bureau (actuellement en charge: D. MAROTTA [Italie])
- 10° Membre du Bureau (actuellement en charge: A.R. TOURKY [Royaume Arabe-Uni])

- 11° Membre du Bureau (actuellement en charge: P.E. VERKADE [Pays-Bas])

12°, 13° Deux anciens Présidents comme membres du Bureau. Il y aura 3 anciens Président (Prof. NOYES, Jr, Prof. STOLL, Prof. TISELIUS). A moins d'une exception, le Prof. TISELIUS, ayant occupé le poste pendant 8 ans déjà, ne sera pas rééligible. Le Conseil, lors de la prochaine réunion à Londres, devra décider par votation s'il entend en l'occurrence appliquer ou non la règle qui limite à 8 ans la durée du mandat. Dans la négative, il faudra procéder à une élection. Il y a lieu de rappeler que trois membres du Bureau, élus à Montréal, resteront en fonction jusqu'en 1965: MM. T.R. GOVINDACHARI (Inde), C.E. NABUCO DE ARAUJO, Jr (Brésil), O. WICHTERLE (Tchécoslovaquie). Les Présidents des six Sections font également partie du Bureau. Ces Présidents sont désignés par les Sections et leur nomination est confirmée par le Conseil. Le mandat de deux Présidents de Section actuellement en charge prendra fin en 1965. Il s'agit de MM. G.M. SCHWAB (Chimie physique, Allemagne) et H. MALISSA (Chimie analytique, Autriche).

\*personnes qui ne sont pas rééligibles

\*\*personnes qui sont également membres du Comité exécutif



En soumettant des candidatures et en procédant au vote, il faudra tenir compte des points suivants:

1° Seules pourront être choisies les personnes qui s'intéressent essentiellement à l'Union Internationale de Chimie Pure et Appliquée et qui sont disposées à consacrer de leur temps à ses activités.

2° Le Bureau doit représenter équitablement les différents domaines de la chimie ainsi que les différentes parties du monde. Tant la répartition géographique que la répartition entre les diverses branches de la chimie sont importantes.

La procédure suivante sera appliquée en 1963 bien qu'elle puisse être modifiée à la réunion du Conseil à Londres si d'autres dispositions à ce sujet étaient introduites dans les nouveaux statuts et règlement adoptés avant les élections.

1° On procédera à un vote séparé pour chaque poste à repourvoir.

2° Les Organismes adhérents représentés par des délégués à la réunion du Conseil ont le droit de vote. Le vote par correspondance *n'est pas admis*.

3° Chaque délégation a le droit de déposer un bulletin de vote qui comptera pour 6 voix dans le cas des pays de la catégorie A, pour 4 voix dans celui des pays de la catégorie B et pour 2 voix dans celui des pays de la catégorie C.

4° Le vote étant secret, les bulletins ne doivent pas être signés. De même, ils ne doivent indiquer de quelque manière que ce soit le nom du pays ou du délégué qui a voté.

5° Si un seul candidat est proposé pour une fonction déterminée, le vote se fera par «oui» ou «non». Si le candidat ne reçoit pas une majorité de «oui», le poste sera pourvu par le Bureau.

6° Pour être élu, un candidat doit recevoir la majorité absolue des bulletins valables, c'est-à-dire qu'il doit recevoir plus de la moitié des suffrages. Les abstentions et les bulletins nuls ne seront pas comptés dans le calcul total des suffrages exprimés. Si plus de deux candidats sont proposés pour le même poste et si aucun d'entre eux n'obtient la majorité au premier tour de scrutin, la personne qui a reçu le moins de voix est éliminée et l'on procède à un deuxième tour de scrutin. Il en sera ainsi jusqu'à ce qu'un des candidats obtienne la majorité. A égalité des suffrages, le Président, après en avoir référé au Conseil Exécutif, aura voix prépondérante.

7° Candidatures:

a) Les candidatures doivent être posées par écrit et adressées au Secrétaire général. Elles doivent indiquer clairement le nom du candidat, les fonctions qu'il postule et être accompagnées d'une courte notice biographique. Etant donné que plusieurs membres du Bureau doivent être élus, la lettre de candidature devra préciser le nom du membre actuellement en charge que le candidat est appelé à remplacer.

b) Les Organismes adhérents doivent proposer leurs candidats au moins deux mois avant le début de la Conférence (c'est-à-dire jusqu'au 15 avril 1963).

c) Le Bureau (ou le Comité exécutif si nécessaire) peut proposer des candidats en tout temps avant les élections. Cela est indispensable pour assurer au moins un candidat pour chaque vacance.

Il est à souhaiter que de nombreux chimistes réputés seront proposés pour les postes à repourvoir en 1963. Une organisation très active se manifeste par de nombreuses candidatures.

Les Organismes adhérents devraient pressentir maintenant déjà différentes personnes susceptibles de poser leur candidature pour 1963. Des titulaires actuels de postes désireront éventuellement se retirer bien qu'ils



soient rééligibles. Ces personnes devraient faire part de leurs intentions à ce sujet.

Tout commentaire concernant cette procédure devrait être adressé aussitôt que possible au Secrétaire général, une décision quant à la procédure à suivre devant être prise en mai 1962 au plus tard.

8° Comité exécutif. Le Conseil élira tous les membres du Bureau. Après les élections, le nouveau Bureau se réunira pour élir les membres du Comité exécutif. Les membres d'office du Comité exécutif sont le Président, le Secrétaire général et le Trésorier. Que ce soit stipulé dans les statuts ou non, la personne appelée à assumer les charges de Président devra faire partie du Comité. Si le mandat du Président est abrégé, le Président sortant devra probablement être également un membre du Comité exécutif. En conséquence, le Bureau devra élir deux ou trois de ses membres en tant que membres du Comité exécutif si ce Comité est toujours constitué de 7 membres.

W. ALBERT NOYES, Jr, Président

Stockholm, 27 December, 1961

Dear Dr. Morf,

*Elections for Officers of the IUPAC in London, July 1963*

In the memorandum 25 September, 1961, from W. ALBERT NOYES, Jr., to all adhering bodies of the IUPAC a proposal was submitted for the election procedure at the XXIIInd Conference in London in July, 1963. The Swedish National Committee for Chemistry would comment this proposal as follows.

*Nomination procedure.* How are the rules decided? Who decides?

*Nomination, § 7a.* Is the nomination unvalid without any biographical sketch? The text "... and 'should' be accompanied by a short biographical sketch ..." is recommended.

*Nomination, § 7b.* The text "Nominations should 'if possible' be made at least two months ..." is recommended.

*Nomination, § 7c.* The text "... must be received by the Secretary General 'or his Secretariat' before noon ..." is recommended.

Which new rules will be proposed for nominations to Commissions?

Sincerely yours,

BENGT SANDBERG

## CORRESPONDENCE AND PROPOSALS REGARDING THE NEW STRUCTURE OF IUPAC

8 September, 1961

Dear Dr. Morf:

This is in pursuance of the meeting which was held with you and the representatives of adhering bodies to IUPAC on Monday, 7 August, at which you asked for suggestions as to how better liaison could be accomplished between the General Secretariat of IUPAC and the member countries. Two or three thoughts have occurred to me along this line which I am passing on to you for your consideration.

An item on the agenda for the Council meeting at Montreal involved approval of interim actions by the Bureau taken in the interval since the Munich Conference. At that time the entire American delegation was in complete ignorance as to what these actions were and even the comment was made that we were being asked to approve a "blank check". This seems to me to be a somewhat undesirable situation. To correct it, I would suggest that adhering bodies be provided with a résumé of such actions by the Bureau, together with such explanatory material as may be pertinent and in advance of future conferences. This would remove the stigma of asking the councilors to approve actions concerning which they have had no previous background information, and indeed no information as to what they are approving.

My second suggestion concerns the mechanism for nomination and election of Bureau members and officers of IUPAC. We all realize that at Montreal considerable confusion attended the formulation of nominations for Bureau members. In order to avoid this in the future, may I suggest the following mode of operation? Prior to the convening of a Conference, a deadline be set (possibly two months prior to the date of the Council meeting) for receipt of nominations for Bureau members and officers of IUPAC who are to be elected by the Council. Nominators for such candidates be required to submit biographical information and other substantive material in support of their nominees. Such material will then be forwarded to the representatives of the adhering bodies of member countries for their study well in advance of the IUPAC Conference. In my opinion, this would avoid the unfortunate occurrences which happened at Montreal.

For your information and guidance in this matter, I am enclosing herewith pertinent items from the agenda of the Council of the American Chemical Society in so far as elections are concerned. The Council of the ACS met in Chicago on 5 September in connection with the 1961 Annual Meeting of the Society at which time action was taken in selecting nominees for the various offices to be filled and also in electing proposed nominees to various committees. I believe the enclosed material is self-explanatory and I would strongly recommend that serious consideration be given to the adoption of some such procedure for IUPAC. Although I have not consulted the members of the U.S. National Committee for IUPAC on this question, I am certain that they would unanimously concur in this recommendation, particularly since the present membership of the U.S. National Committee for IUPAC embraces the incumbent president of ACS, the president-elect of ACS and three past-presidents.

With best regards,

Sincerely yours,

ROBERT C. ELDERFIELD, Chairman

Vienna, 10 October, 1961

Dear Dr. Morf,

In reply to your letter No. 5764 of 4 October, permit me to make the following suggestions:

(1) We must definitely try to lay down in the Statutes a permanent headquarters for the General Secretariat. Experience has shown that the Union can only function properly when continuity is ensured. You, yourself, Dr. Morf, have succeeded in setting up a secretariat which can function efficiently and I would therefore suggest: (a) that a permanent Secretary General be appointed; (b) that the site of the General Secretariat be established in a neutral West-European country. I declare my willingness, if necessary, to conduct negotiations with our Government in this connection.

(2) I would make the following additions to the Statutes:

§1 last sentence—The site shall be chosen every four years but shall be permanently established in a neutral West-European country.

(3) §2—In my opinion a section for Radiochemistry and Chemistry of Atomic Fuel should also be created.

(4) §4—I would suggest that a Category D be also created allowing for those countries which may not yet have developed any real chemical capacity but whose government is interested in co-operation. This category would pay a basic subscription. This would mean that the contribution of each category would always consist of two parts—the basic subscription to signify membership of IUPAC. The various contributions for categories A, B and C would decide the number of delegates.

(5) §6—In connection with the foregoing, it should be stated that Category D countries would be entitled to one delegate.

(6) §6—It is not clear who is the President of the Council. This should be thought out and clearly resolved. According to §7 the Council chooses the President of the Union. It is difficult to combine with democratic principles the fact that the President of IUPAC is also President of the Council.

(7) I would add to §7: The Bureau consists of the President, the Vice-Presidents (no limit but as many as there are independent Sections), Secretary General, Treasurer, 6 elected members and the last president. Further the Secretary General should be elected for at least 8–10 years and should be eligible for re-election without a time limit.

(8) §8—As regards postal votes some possibility of control of the election results must be guaranteed, for instance elections results could be confirmed by the Council at its next meeting.

(9) At the end of the 1st Section of the 1957 Statutes an extra paragraph should be added: That the duties of the members of the Bureau be laid down as standing orders as, for instance, those contained in Information Bulletin No. 14, page 28.

(1) §13—In my opinion voting by correspondence in this case should be inadmissible.

(11) §14—In the case of dissolution of the Union, liquidation should not be carried out by one person, but by three, in my opinion.

(12) §16—should come before §15 and the definition should consist only of the first sentence of §16.

(13) §15—should read: consists of (i) Section Committee; (ii) Divisions and/or Sub-Divisions; (iii) Commissions and/or Sub-Commissions.

(14) §18—should include another point (6) that Sections must submit matters of sponsorship to the Bureau or Executive Committee for decision.



(15) Chapter I, §1-3 of the By-Laws should be included in Paragraph 3 of the Statutes.

(16) Chapter I, §4 of the By-Laws should be included in §7 of the Statutes.

(17) By-Laws Chapter II, 5-9. These matters should be left to the Section Committees for decision.

(18) By-Laws Chapter II, 17 should be advanced and should replace the last sentence of §19 of the Statutes.

(19) It should also be discussed in Rome whether IUPAC should not become an organization similar to the International Atomic Energy Agency. In this case the recommendations and the practical and scientific work carried out would carry more weight.

H. MALISSA

17 October, 1961

Dear Dr. Morf,

*Future Organization of the Union*

I have the following proposals to make:

(1) When a Congress is allotted to a particular country the Union should choose the subject. Otherwise the Union cannot keep to a proper schedule for sharing the Congress topics amongst the various sections. It has been said that if a country is organizing a Congress it should have a free choice, but I can see no reason for this argument. There is no tradition more ancient in this world than that the host shall prepare his table according to the taste of his guest. Moreover, an unfair allotment of Congresses to one particular subject causes discontent in the Sections. The Analytical Chemistry Section has never had a Congress in a Conference year, since its inception.

(2) When a Congress topic is decided, the organizing committee of the particular country should arrange its programme in consultation with the appropriate Section Committee. In my opinion, the Section Committee is the most suitable body to decide which particular aspects of a subject require Congress treatment. If this rule is adopted a Section Committee can lay down a long-term policy.

Both these recommendations were made at the meeting of Presidents, but somehow they do not seem to have come before the Bureau at Montreal. I made these proposals to the Section Presidents who all agreed with me and I hope these recommendations will now receive serious consideration. If this policy is not followed, I fail to see what purpose the Union is serving, because it is essentially a co-ordinating body. And without co-ordination of this kind, there seems to be no purpose for the national body organizing a congress to need IUPAC support.

(3) The title of President should be reserved for the President of the Union and the Presidents of Sections. At the moment, the term "President" and "Chairman" seem to be used indiscriminately for the leaders of commissions. This causes considerable confusion. The leaders of commissions should have the title of "Chairman" to differentiate from the President of the Section.

(4) Under the present statutes the Chairman of a commission can remain in office for eight years. This is for too long. His period of office should be exactly the same as that of the President of the Section—for four years. He could of course remain on the commission in some other capacity for a total of eight years, as is the case on the Section Committee. This situation



is particularly trying if one has a Chairman who is not very active. Accordingly, the term of office of a Chairman of a commission should be adjusted to that of President of the Section.

Yours sincerely,

R. BELCHER

Basle, 23 October, 1961

(Translation from German)

Dr. Morf,

A few days ago I received a letter asking my opinion on the future development of the Union and, in particular, on the report of the Verkade Commission. As I was myself a member of the Verkade Commission I had the opportunity to bring to notice certain of my experiences. Since then further discussions have taken place and I should like to add the following:

In Montreal the recommendation of Section Presidents was discussed, i.e. that each Section President should be an *ex officio* member of the Commissions in his own Section. I suggested this on the basis of experience during the last few years. It has been proved time and again how important it is that the choice of titular members in Commissions should be conducted with due care and, in particular, that the *right people should be elected to Commissions*. I have, in many cases, made proposals to Commission Presidents. I would welcome it if, in future, Section Presidents had officially a definite right to steer the development of the composition of individual commissions in the right direction by nominating possible titular members.

A further comment concerns the help which the Union can give to Section Presidents and possibly also Commission Presidents. It would make things much easier if individual Commission and Section Presidents were allotted a certain sum of money to cover the work carried out and including small *ad hoc* consultations. He would have to account for this money but would have complete authority over its use.

I would rather advise against the establishment of additional permanent secretariats. The administrative work for IUPAC of Section and Commission Presidents is very irregular, and the necessity of filling in the time between peak periods could be harmful to the principle of centralization.

I think these are the only observations which I have to make at the moment.

Yours sincerely,

W. KUHN

26 October, 1961

Dear Professor Noyes,

Allow me to expose some considerations concerning the scientific and organization activities of IUPAC.

The first point is the structure of this international body. The Physical Chemistry Section comprises seven Commissions: "Physico-Chemical Symbols and Terminology", "Chemical Thermodynamics", "Electrochemistry" with the affiliated Commission "International Committee for Electrochemical Thermodynamics and Kinetics", "Macromolecules", "Physico-Chemical Data and Standards", "Molecular Structure and Spectroscopy", "Applied Radioactivity (Joint)". It strikes one that

chemical kinetics is represented with respect to electrochemical processes only, and catalysis is altogether absent. Yet these fields of chemical science are very advanced now and are of particular importance for all divisions both of pure and applied chemistry. Kinetics will no doubt play an ever increasing part in all branches of chemistry. Consequently, I should think it desirable that the Executive Committee discusses at one of its meetings the feasibility of forming a Commission on Kinetics and Catalysis with Sub-Commissions of Kinetics and of Catalysis, as well as the functions of these.

The second point is the regulation (if possible) of scientific publications. Time seems to have come for considering this problem. Everybody will probably recall the Discussion held in London by the Scientific Publications Council and concerned with problems arisen in connection with the rapid increase in the number of scientific journals (*Nature* 186, 18, 1960). Not every scientist can afford having a secretary who'd collect all the scientific information he needs, looking through an endless number of journals. Papers on some scientific topic are usually dispersed over many journals, including quite unexpected ones, and the search for scientific information takes more and more time (naturally if the scientist takes the trouble of being well informed).

Only an international organization would be able to propose certain arrangements for introducing at least some order in the matter of publications, and with respect to chemical journals it should be the IUPAC. I would suggest that the first thing desirable would be to discuss a more precise definition (perhaps narrowing) of the scope of journals, in order that papers related to certain topics be published in a limited number of journals. Certainly some other possibilities for improving mutual scientific information could be found as well. I think that this problem should also be discussed by the Executive Committee.

Sincerely yours,

Prof. V.N. KONDRATIEV

27 October, 1961

Dear Mr. President,

*Future Organization of the Union*

I thank you for the draft of your letter to Dr. MORF which I received from Miss ANDERSON the other day.

I have already forwarded some comments on this subject to Dr. MORF in response to his letter, No. 5764, of 4 October, so I enclose herewith a copy.

I have very few comments on your draft letter other than to say that all the points you make seem to me to be very sound.

My comments are as follows:

*Page 1.* I presume "Adhering Bodies" who are degraded to category "D" because of non payment of dues would not have a vote.

*Page 2, para. 4.* This would mean that members of the Bureau must not be nominated by their countries as official delegates. I am wondering whether that is intended.

*Page 2, para. 5.* To paraphrase: 50% of the possible voting capacity must be present at a Council meeting to represent a quorum, and then of the votes cast there must be either a simple majority (or  $\frac{2}{3}$  in certain cases) for a resolution to be passed.

Page 3, para. 7. I am very pleased to note you indicate that Council meetings need to have more time for discussions. I have inserted a similar comment in my letter to Dr. MORF.

Page 4, paras. 5, 6 and 7. I am very interested in these paragraphs for my experience in, for example, our Society of Chemical Industry indicates that a paid Secretary with two Honorary Secretaries (one for Home and one for Foreign Affairs) works well. This is rather similar to the suggestion you make, namely a paid Secretary and a "Policy" Honorary Secretary.

I do hope that these somewhat scrappy comments will be of assistance.

With kind regards,

Yours sincerely,

J.H. BUSHILL

27 October, 1961

Dear Dr. Morf,

*Future Organization of the Union*

I note from your letter, No. 5764, that the President has requested that comments on the above subject be forwarded to you before the meeting of the Executive Committee on 7 November.

I have not been able to give this serious thought so my comments merely itemize a few matters for consideration without necessarily indicating a solution.

In reviewing the structure of the Union I suggest that one should consider first the needs of the working units (namely the Commissions and Divisions), and then study ways and means by which these units can best be assisted and their findings publicized.

*Commissions.* Much thought has already been given to the function of Commissions and to the election of their members. There still remains, however, the question of length of service. The current view is that this should be strictly limited (4 or 8 years) although some Commissions are allowed to continue indefinitely. Possibly the latter type of Commission might be given a different name (see under "Divisions").

*Divisions.* These exist only in the Applied Chemistry Section, but consideration might be given to the adoption of that name (Division) to a Commission which is allowed to continue indefinitely.

*Sections.* (a) *Contacts with other Organizations.* There appears to be an increasing need for collaboration between our Union and various International Organizations, i.e. IUB, WHO, FAO and ISO. As such collaboration should normally be made through the appropriate Sections of IUPAC, a simplification might be to appoint a member of the Section as the official liaison officer who would be in continual communication with the appropriate International Body. He might even have a place on the appropriate committee of that Body. This would avoid the necessity of operating each time through the Secretary General's office. (b) *Additional Secretarial assistance for the Sections* (Executive Committee Meeting, August 1961, Minute 156). This is no doubt necessary but I am not at all certain to what extent additional staff in the Secretary General's office would meet the case. No doubt it would provide a mechanism for circularizing members of the Sections, but if that office dealt with the normal correspondence of the Sections, then a complete file would need to be kept there. This would not supersede but would be additional to the files kept by the President and Secretary of each Section.



*Bureau.* During the discussion at Montreal on the Structure of the Applied Chemistry Section, there was an expression of view from United States representatives that Applied Chemistry should have more representation (at a higher level) in the Union. Possibly this could be considered in the forthcoming deliberations.

*Organization of Bureau, Executive Committee, and Council Meetings.* The "Introduction" to the Minutes of the 47th Executive Committee Meeting, August 1961, already suggests the need for some simplification both in the organization and in the minuting of these meetings. The point I particularly wish to stress is the need for the Sections to have adequate opportunity to report to the Bureau and Council. May I suggest that a simplification be introduced which would give the Sections more opportunity to report both to the Bureau and to the Council, and thereby to obtain authority to continue (or discontinue) their activities. Any unnecessary restriction in communication results in frustration.

*Officers of the Union.* The general impression I have is that the Officers of the Union are expected to carry too heavy a burden. This applies particularly to the Secretary General. The President has already questioned whether or not the holder of his (the President's) office should take a considerable hand in the running of the organization or whether he should be more of a figure-head. This is a matter of policy which needs to be decided. I suppose the policy may vary dependent upon the holder of that office, and in that event the organization should be made adaptable.

I hope the above very limited comments will be of some use.

Yours sincerely,

J. H. BUSHILL

Vienna, 30 October, 1961

Dear Mister President,

I gladly give my views concerning your letter to Dr. Morf dated with 24 October. With letter No. 5764 Dr. MORF asked me for some suggestions concerning the Statutes and By-Laws of the Union. I have answered this letter on 10 October. I have had the opportunity to discuss this matter with Prof. KLEMM when he stayed in Vienna last week. Regarding your letter my opinion is this:

Ad 1: I fully agree with you in creating a 4th category (D) and I have made the proposal that this category which should only have one vote and should pay a so called basic-subscription fee. The subscription of the other category should be subdivided into two parts, namely (1) the basic-subscription and (2) the maximal, medium or minimum fee. All this should be incorporated into §4 of the statutes.

I understand fully the difficulties which can arise of having German as an official language by the Union, but in the other hand, not only in Western and Eastern Germany as well as in Switzerland and Austria German is the official language and it seems to me that in the Union more people speak and understand German than Russian. Therefore it should be considered to have German also as an official language for the Union.

Concerning §13 from the Statutes of 1957: It is not my opinion that voting by mail should be allowed. This is the same as you have mentioned to Dr. MORF.

As usual in diplomacy only the French version of important papers should be valid.

Recorded votes should be also required for the dissolution of the Union or for the dissolution of a section (two-thirds majority).



Ad 2: I wouldn't be happy if the term of the president of the Union would be shortened to two years. This would mean that no president will take the necessary steps for long running programmes or decisions.

The point of preventing the reelection of the same person as president ever again should be very carefully handled. Concerning the composition of the Bureau I also made a proposal to Dr. MORF. Concerning the question of the Secretary General, it seems to me that we shall have to make this position interesting in such a way that the person concerned will get full compensation for the loss of time and eventual scientific drawback. The next question would be where to establish the office (headquarters) of the Secretary General.

What about a neutral country?

Ad 3: A suggestion I have given to Dr. MORF in my letter of 10 October: I rather definitely think that we need a section for radiochemistry and nuclearchemistry.

The relation between the sponsorship, the Union and the practise used up to now should be reconsidered in as much the Section Committee should be installed with more power.

Very, truly

Prof. Dr. H. MALISSA

31 October, 1961

Dear Noyes:

I have gone over in considerable detail your memo regarding elections of IUPAC officers under date of 25 September, and also your letter to MORF under date of 24 October. I think that both of these documents are exceptionally to the point. There are, however, one or two items which I believe should be pushed as hard as possible.

The first concerns the term of the President of IUPAC. I agree wholeheartedly with you that this should be shortened to two years, and that the office should be made more or less an honorary one as is the case in general with the President of the American Chemical Society. The shorter term seems to me to have at least two major advantages.

As you well know, the Presidency of IUPAC imposes rather severe financial strains on the incumbent in addition to the demands on his time. It seems to me to be quite unreasonable to expect a person to meet these very heavy obligations for a 4-year period.

The second advantage seems to me to be the opportunity that would be presented by a two-year term to achieve wider geographical distribution as far as the Presidency is concerned. One of the major problems facing IUPAC as I see it is to increase the interest in it beyond the relatively narrow confines (geographical) within which it has operated in the past. One of the best ways of doing this would be to shorten the term for the President so that more countries would be able to participate in the filling of this position.

My second comment concerns the procedure for nomination of officers, Bureau members, etc. I feel quite strongly that all nominations plus supporting documents should be in the hands of the National adhering bodies at least two months prior to a Council meeting, and that after such a deadline is past, no new nominations should be entertained. This would seem to me to avoid the difficulties encountered in Montreal. We got out of that one luckily, but there is no assurance that we will be so lucky in the future.

I also feel that distribution of documents reporting action which the Council will ask to be confirmed should be made mandatory well in advance of Council meetings. This will give an opportunity for study on the part of the national representatives and should, if the latter do their job, conscientiously stimulate the amount of discussion at the Council meetings which we all hope will take place.

Finally, I think it would be well to spell out in words of one syllable in the revision of the Statutes and/or By-Laws, that, while abstention may be recorded, under no circumstances are they to be considered "no" votes.

Sincerely yours,

R. C. ELDERFIELD

31 October, 1961

Dear Noyes:

Mrs. ANDERSON has sent me a copy of your 24 October letter to Dr. MORF with the request that I send any comments which I may have on it to you. On the whole, I believe that this letter does a beautiful job in outlining some of the administrative problems which the Union faces, and I have very few comments to make on it. However, there are three or four questions that bother me.

I would strongly support the comments made in paras. 3 and 4 on page 3 of your letter. If different countries are to have different numbers of delegates, they should also have different numbers of votes. Clearly, abstentions from voting should not be allowed to be equivalent to negative votes. This is quite contrary to the spirit of democratic voting.

I have thought a good deal about your proposal to shorten the term of the president to two years, and I have come to the conclusion that your arguments are sound. However, shortening the term involves a great deal more than simply passing the work and the honor around twice as many people, for it will mean that the president will not have the experience or the background that a man in the four-year term would have. If we are to shorten the term, then we must strengthen the central secretariat. The president should not be deprived of power or authority, but, clearly, his power will be limited because his experience is limited. I think that this is probably a good thing, though it will mean that the Union will have to be very careful in selecting a Secretary General. In the fourth paragraph which begins on page 4, you comment that "it would be virtually impossible for a person to be Secretary General and pursue an active scientific career, unless . . .". I seriously question whether it would be possible for a man to do these two things simultaneously under any conditions. The Secretary General should certainly be a competent and experienced chemist, but I think that when he takes up his duties as Secretary General, he should understand that this is a job that will take his full time and energies. He should, of course, be paid adequately for this service.

In the second paragraph on page 5, you refer to the budgets of the various sections. This calls to my mind a problem which the American Chemical Society faced a few years ago and which may be circumvented in the International Union by proper wording of this paragraph. The problem arose from the fact that local sections and divisions of the society were soliciting funds from industry and, at the same time, the national society was soliciting funds. Some companies got three or four requests for contributions. This led to hard feelings and to a very confused situation. It was finally resolved (and I think this is the only way possible) by passing

a ruling that no local section or division might solicit funds without the permission of the national society.

With your letter to Dr. MORF, MRS. ANDERSON enclosed a memorandum dated 25 September and signed by you. This concerns the elections which are to take place in 1963. I should like to add a comment or two on these. It seems to me that the two immediate past presidents should be members of the Bureau, rather than an elected two. They will be more familiar with the affairs of the organization than one who has been out of office longer. It is particularly important that these two be chosen if the term of the president is kept at four years, for in that case, the "third immediate" past president would have been out of office for eight years and might very well be too old to be able to devote much energy to the Union.

In para. 7C on page 3 appears the statement that nominations may be made during the conference. This, I think, is at variance with the statement in para. 2 at the bottom of page 2 that voting by correspondence shall be admissible. If the nomination for an office is made only a day or two before the election, it will be quite impossible to carry out voting by correspondence. I am of the opinion that in the long run, the organization will be strengthened if we insist that nominations be made a month or two ahead of time. If nominations can be made at the last minute, we open ourselves not only to carelessly made nominations, but also to political machinations of various sorts. If any adhering body is really interested, they can make a nomination a month or two ahead of time just as well as they can on the last day.

Sincerely yours,

JOHN C. BAILAR, Jr.

1 November, 1961

Dear Dr. Morf:

You may recall that at the final meeting of the Bureau in Montreal I offered some suggestions about modifying the composition of the Bureau to provide better geographical representation. I am now submitting these ideas in writing for the consideration of Professor VERKADE and his Committee.

If the Union is to be truly international in outlook, the Bureau should include a certain number of members who are chosen because they can properly represent the science of chemistry as a whole in each geographical area where science and technology is a significant force. At the same time, if the Union is to command the respect of the world's chemists, its management, as embodied in the Bureau, must also include individuals who are chosen primarily for their stature in the several specialized branches of chemistry. This latter objective was attained when the Union adopted a sectional organization and designated the Presidents of the six Sections as ex-officio members of the Bureau. On the other hand, no systematic means have yet been provided for obtaining good geographical representation in the Bureau, although concern has been expressed frequently about poor geographical representation. On the last two occasions we have been troubled by the fact that four Section Presidents were chosen from a single country. Nothing could or should be done about this because Sections must have the right to choose their Presidents without regard to any consideration other than their scientific and personal qualifications. Nevertheless, suggestions have often been made that some degree of balance should be sought by choosing others, such as commission members.



on a geographical basis. When I was President of the Inorganic Section it was more than once suggested to me that commission members might be selected from countries that at the time were not well represented in the Union. I opposed these suggestions because, of all the agencies of the Union, a Commission most certainly must be composed of persons of special competence and interest. We have only slowly and not yet completely emerged from a period in the history of the Union when many commission members were chosen too casually and have failed to take their duties seriously. Geographical considerations should have no more than incidental bearing on the membership of a Commission. Geographical considerations can properly be taken into account in the election of members of the Section Committee. I believe that Commission Presidents should be ex-officio members of the Section Committees and that these Committees should also contain an approximately equal number of persons chosen on a geographical basis.

This brings me to my proposal that the membership of the Bureau should certainly represent an approximate balance between persons chosen solely on the basis of specialized interest and competence—the Section Presidents, and others chosen on the basis of geographical representation. At Montreal I suggested that the Union might have twelve Vice-Presidents—six of them the Section Presidents and six others elected by the Council from among nominees representing specified geographical areas. There may be an objection to such a large number of Vice-Presidents on the ground that enlarging the number will tend to diminish the stature of this office. However, we already have nine Vice-Presidents, of whom three are indistinguishable in their duties and responsibilities from the elected members of the Bureau. As the Bureau grows in world influence there will be occasions when it could be appropriately represented in remote geographical areas by Vice-Presidents residing in the areas, thus sparing the President or other general officers the burden of excessive travel. Well-chosen Regional Vice-Presidents would be likely also to promote interest in and support for the Union in their respective areas. However, the title of these regional officers is not as important as would be their having specific regional responsibilities. If the title of Vice-President were not to be given to members of the Bureau who have these duties, I would suggest that it also be withheld from the Presidents of the Sections, who have similar responsibilities in specified sub-divisions of chemistry.

There should be one general Vice-President who would act for the President in the event of his absence or disability, and who also would succeed to the presidency either by Statute or by tradition. This would account for thirteen members of the Bureau in addition to the three existing General Officers and the Past-Presidents. In order to retain the present total number of the Bureau I suggest that the remaining five members be designated members-at-large. This would provide some latitude for the selection of a few eminent persons without regard to the considerations governing the choice of the thirteen.

I have the following additional suggestions pertinent to the general revision of the Statutes.

- (1) Emphasis should be placed on maximum autonomy for the Sections consistent with basically uniform policies concerning activities and operations.

- (2) The Union should have a full-time paid secretariat responsible to the Executive Committee, as soon as there can be assurance of the necessary continuing funds for the support of this central office. We should not expect our elected General Officers to spend as much time and effort as are now required of them. If we continue to do so we shall from time to



time find ourselves unable to attract to these offices persons of the desired world-wide eminence.

(3) I believe that the relatively new idea of Associate Membership on Commissions is a useful device and that clear provision should be made for it in the Statutes. Associate Members should be chosen in the same manner as Titular Members but should not have the right to vote, or to claim reimbursement for travel costs without specific approval of the Executive Committee.

(4) Article 6 of the Statutes, relating to the composition of the Council should be clarified in respect to the following questions: What is the term of office of the delegates? Is it "until successors are elected"? Should not the General Officers and Bureau members, who are elected by the Council be designated ex-officio members of the Council? I suspect that in practice any responsibilities entrusted to the Council under Article 8 that have to be attended to between Conferences are actually discharged by the adhering organizations rather than the delegates. This may be good practice but in any case, the Statutes should provide for some means of maintaining continuity in the Council. As it stands it is possible for none of the delegates to the Council, at any particular Conference, to have served previously.

Sincerely yours,

EDWARD WICHERS

## CALENDAR

1962

- |                        |  |                |
|------------------------|--|----------------|
| <i>April</i><br>3-5    | Symposia on "The Transition State"<br>"Some Aspects of the Chemistry of Natural Phenols"<br>"Reactivity and Structure in Inorganic Chemistry" (The General Secretary, The Chemical Society, Burlington House, Piccadilly, London W.1)      | Sheffield      |
| 9-12                   | Feigl Anniversary Symposium, Society for Analytical Chemistry (M. L. RICHARDSON, c/o John & E. Sturge, Ltd., Lifford Chemical Works, Lifford Lane, Kings Norton, Birmingham, 30/GB)  | Birmingham     |
| <i>May</i><br>2        | 14th International Symposium on Crop Protection (Prof. J. VAN DEN BRANDE, Institut agronomique de l'Etat, 233, Coupure Gauche, Ghent/Belgium)  | Ghent          |
| <i>June</i><br>4-8     | 12th Annual Meeting of the Société de Chimie physique "Physico-chimie de la Séparation des Isotopes" (Prof. G. EMSCHWILER, Ecole supérieure de Physique et Chimie, 10, rue Vauquelin, Paris-5 <sup>e</sup> )                               | Paris          |
| 12-15                  | 75th Anniversary of the Société chimique de Belgique. Symposium on Organic Chemistry (Comité national de Chimie, Palais des Académies, Brussels/Belgium)   | Brussels       |
| 18-22                  | International Conference on Spectroscopy (Prof. V. A. FASSEL, Department of Chemistry, Iowa State University, Ames, Iowa)  | Maryland (USA) |
| <i>June</i><br>25-29   | International Conference on Co-ordination Chemistry (Prof. L. G. SILLÉN, Royal Institute of Technology, Kemistvägen 37, Stockholm 70/Sweden)   | Stockholm      |
|                        | Meeting of the Sub-Committee on Organometallic Compounds   | Copenhagen     |
| <i>July</i><br>25-28   | Commemoration Symposium of the 50th Anniversary of the discovery by Prof. M. v. LAUE of the diffraction of X-rays by crystals (Prof. F. BOPP, Institut für theoretische Physik der Universität, Geschw.-Scholl-Platz 1, Munich 22/Germany) | Munich         |
| <i>August</i><br>26-29 | Symposium on the Chemistry of Natural Products (Prof. F. ŠORM, Institute of Chemistry, Czechoslovakian Academy of Sciences, Na cvicisti 2, Prague 6/Czechoslovakia)  | Prague         |

*September*

- 10-15      Symposium on molecular Structure and Spectroscopy (Prof. S. MIZUSHIMA, 698, 2-chome, Tamagawa-Denenchofu, Setagaya-ku, Tokyo/Japan)      Tokyo
- 13-14      British Nuclear Energy Conference. Symposium on the Advanced Gas-Cooled Reactor (The Secretary, B.N.E.C., 1-7 Great George Street, London S.W.1/GB)      London
- 17-19      International Symposium on Pharmaceutical Chemistry\* (Prof. A. SOLDI, Società italiana di Scienze farmaceutiche, Via Giorgio Jan 18, Milan/Italy)      Florence

**1963**

*June*

- 24-28      Symposium on Thermodynamics and Thermochemistry (Dr. STIG SUNNER, Thermochemistry Laboratory, Lund University, Lund/Sweden)      Lund

*July*

- 5-9      XXIIInd Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland)      London
- 10-16      XIXth International Congress of Pure and Applied Chemistry (Organizing Committee, XIXth International Congress of Pure and Applied Chemistry, 14 Belgrave Square, London S.W.1/GB)      London
- 18-20      Symposium on the Chemistry and Biochemistry of Fungi and Yeasts (Prof. T.S. WHEELER, Department of Chemistry, University College, Science Buildings, Upper Merrion Street, Dublin/EIR)      Dublin

**1964**

*July*

- 20-25      3rd International Congress on Catalysis (Prof. J. H. DE BOER, Staatsmijnen in Limburg, Central Laboratorium, Geleen/Holland)      Amsterdam

*August*

- 4-10      5th International Symposium on the Reactivity of Solids (Prof. G.-M. SCHWAB, Sophienstr. 11, Munich/Germany)      Munich

*September*

- ?      Symposium on Natural Products (Prof. MUNIO KOTAKE, Suita Kenkyujo, 646, Katayaka Suita, Osaka/Japan)      Japan

\* Please note that the subject of this symposium is Pharmaceutical *Chemistry* and not Pharmaceutical Products as shown in Information Bulletin No. 14B.

## British National Committee for Chemistry

*Symposia and Discussion Meetings open to chemists from abroad  
(without sponsorship of IUPAC)*

1962

- |                           |   |        |
|---------------------------|---|--------|
| <i>April</i><br>9-13      | 6th Congress of the International Society for Fat Research (information from the Society of Chemical Industry, 14 Belgrave Square, London S.W.1/GB) | London |
| <i>June</i><br>26-28      | Symposium on the "Physics and Chemistry of High Pressures" (information from Society of Chemical Industry)  | London |
| <i>September</i><br>18-21 | 1st International Congress of Food Science and Technology (information from Society of Chemical Industry)   | London |



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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 16**

**JULY, 1962**

**SECRETARY GENERAL:**

**Dr. R. Morf, c/o F. Hoffmann-La Roche et Cie., SA, Basle 2 (Switzerland)**

**Butterworth Scientific Publications · London**





## HOMAGE TO PROF. DR. F. RICHTER

1 September 1896–22 November 1961

Professor FRIEDRICH RICHTER, who died on 22 November, 1961, was born on 1 September, 1896, in Berlin. The son of a merchant, he studied Chemistry at the University after leaving the grammar-school. He took his doctorate under E. TIEDE on the subject of "Phosphorescing substances of the  $MgS$  type" and worked at the same time in the Beilstein editorial office which had been situated in Hofmann House—the site of the German Chemical Society—since 1896. As a result of his rare talent, which combined a scientific brain with a feeling for language and writing, he was attracted to chemical literature to which he brought a unique accomplishment.

He did not immediately leave the laboratory bench and several sharply observant and polished publications in the field of terpenes date from his early days in editorial work. In 1924 he assumed the editorship of the First Supplement to the 4th Edition of Beilstein's Handbook of Organic Chemistry and in 1933 he became chief editor of the whole work in succession to B. PRAGER. Under his brilliant, clear-sighted direction the last volume of the principal work appeared in 1937 and that of the First Supplement, which surveyed the literature from 1910 to 1919, was published no later than 1938.

In the race between output of publications and production of further supplements, his work received an apparently hopeless setback during the Second World War. FRIEDRICH RICHTER's achievement in overcoming the enormous difficulties of the time will go down in the history of chemical literature. Fate decreed that in 1943 his office should be destroyed and he then evacuated it to an out-of-the-way place in Silesia. This was quiet for a short time but when the general offensive came from the East the office was forced to flee. They survived the whole *débâcle* in the neighbourhood of Dresden but by this time they had lost everything but the microfilms of scientific documents. With these, assisted by a few faithful colleagues and with the energetic help of Prof. R. ADAMS, RICHTER was able to take up his work again in the American zone in Höchst, near Frankfurt.

In 1957, after a period of 16 years of unspeakable difficulties, the Second Supplement was completed. Today we already have 5 volumes of the Third Supplement (1930–1949). Death overtook RICHTER in his most productive phase when he was leading the several dozen colleagues whom he had taken with him from the Beilstein Institute to Frankfurt. RICHTER's name appears on 80 volumes of internationally indispensable hand-books—a memorial which he himself had erected during his own lifetime.

RICHTER had been a member of the IUPAC Commission on Nomenclature of Organic Chemistry since 1934. He represented there the interests of the German language and, with his unique feeling for style and clarity and his rich knowledge and character, he was held in very high regard by his fellow members. His willingness to cooperate and to obtain agreement on new nomenclature rules, which could not always have come easily to him as a traditional Beilstein editor and humanist, was always appreciated.

The rules for nomenclature of carbohydrates and fundamental heterocyclic systems, which have already been published, and those concerning "characteristic groups", which are soon to appear, contain many of RICHTER's clear and logical ideas. Furthermore, he was a member of the IUPAC Commission on Codification, Ciphering and Punched Cards, which a short while ago produced the Rules for IUPAC Notation of Organic Compounds after 15 years of hard work.

Although he, personally, was not enthusiastic about the mechanical checking and interpretation of the literature, which can never replace the

use of the intellect, he nonetheless gave a great deal of time and thought to this part of his international work. For his activities on behalf of IUPAC, which he conducted with a deep sense of responsibility, as in everything he undertook, his colleagues are deeply indebted to him.

In his "free" time he devoted himself to editing HOLLEMAN's organic textbook which he kept up to date continuously from the 19th to the 41st edition. The study of the whole field of chemistry, necessitated by this work, permitted him, in discussions and in his lectures at the universities of Frankfurt and Mainz, always to examine relationships from the highest standpoint.

With his scientific sense he combined a high culture and a fine, human character. RICHTER had a wide knowledge and understanding of all the arts. He practiced music himself and was a keen follower of aesthetic literature, often in the original language for he commanded a knowledge of almost all European languages. This gave him a broad outlook which also lent distinction to his Science.

The World has lost in FRIEDRICH RICHTER an important man, a scholar and a chemist of universal talent, whose outstanding achievements are imperishable.

THEODOR WIELAND

## INTRODUCTION

Ce Bulletin d'Information no 16, que nous faisons paraître immédiatement après les réunions du Bureau et du Comité exécutif de l'Union internationale de Chimie pure et appliquée qui ont eu lieu à Bruxelles du 15 au 18 juin 1962, relate les événements qui se sont déroulés au cours du premier semestre de 1962.

Vous y trouverez les décisions les plus importantes qui ont été prises lors des réunions du Bureau et du Comité exécutif ainsi que divers rapports.

Le rapport du Dr H.W. THOMPSON et du Prof. B.C.L. WEEDON signale les progrès réalisés dans le domaine des publications de l'IUPAC.

Le procès-verbal de la réunion de la Commission mixte de Radioactivité appliquée tenue à Bâle le 4 novembre 1961, rédigé par M. CH. FISHER, donne entre autres les détails concernant l'activité future de cette commission.

En vue de la réunion de la Commission de Structure moléculaire et de Spectroscopie et pour l'information des divers participants au Symposium international de Structure moléculaire et de Spectroscopie qui aura lieu à Tokyo du 10 au 15 septembre 1962, le Prof. RICHARD C. LORD, Président de la Commission de Structure moléculaire et de Spectroscopie, nous a autorisés de publier son rapport.

Finalement, nous publions le rapport du Prof. MILTON BURTON, délégué extraordinaire de l'Union internationale de Chimie pure et appliquée auprès du COSPAR (Committee on Space Research), adressé au Secrétaire général. Ce rapport contient des données qui intéresseront un plus grand public.

## QUESTIONS FINANCIÈRES

Le Trésorier, Sir CHARLES DODDS, nous a fait savoir, par le rapport intermédiaire pour l'année 1961 qu'il nous a présenté, que, contrairement au budget, un équilibre financier avait pu être atteint. Cet équilibre est dû à l'augmentation volontaire des cotisations de la part de nombreux organismes adhérents et, plus particulièrement, aux dons extraordinaires de ces mêmes organismes et diverses sociétés. Il est évident que l'effort financier fourni par nos collègues canadiens, qui ont organisé la Conférence et le Congrès de Montréal, mérite une mention toute spéciale.

Malgré tous nos efforts, le nombre des chimistes qui se sont inscrits pour le vol spécial pour Tokyo n'était pas assez élevé pour pouvoir bénéficier de conditions avantageuses. Nous avons donc dû renoncer à l'organisation d'un «charter flight» d'Europe au Japon.

## ORGANISMES ADHÉRENTS

Le Bureau de l'Union internationale de Chimie pure et appliquée a accepté, au nom du Conseil, la demande de l'Inde de passer en catégorie B2. En conséquence, l'Inde a droit, dès à présent, à quatre voix et est autorisée à déléguer quatre représentants à la réunion du Conseil qui se tiendra à Londres en 1963. Nous félicitons nos collègues indiens de leur initiative.

La Corée du Sud a demandé son admission comme organisme adhérent de l'IUPAC. Le Bureau étant favorable à cette admission a décidé d'en proposer la ratification au Conseil.



## **CANDIDATURE POUR LE BUREAU ET LE COMITÉ EXÉCUTIF**

Par sa lettre du 11 décembre 1961, le Président de l'IUPAC, le Prof. W. A. NOYES, jr., nous faisait savoir que son mémorandum allait être envoyé à tous les membres adhérents afin de les orienter sur les élections qui devront avoir lieu à la prochaine Conférence de l'IUPAC à Londres en 1963. Lors de sa réunion de Bruxelles, le Bureau a approuvé le mémorandum du Président. La procédure que nous adopterons pour les élections à la Conférence de Londres sera donc celle préconisée dans le mémorandum du Président qui a fait l'objet d'une publication dans le Bulletin d'Information no 15, p. 27.

Les Organismes adhérents et les membres du Bureau sont invités à proposer des candidats. Une courte biographie doit accompagner chaque proposition.

Si les nouveaux statuts sont adoptés au début de la Conférence de Londres, certaines adaptations seront nécessaires particulièrement en ce qui concerne la durée du mandat et plus spécialement encore en ce qui concerne le poste de vice-président appelé à la présidence et celui de président sortant.

### **PROGRAMME DE LA CONFÉRENCE DE LONDRES 1963**

Le Bureau a décidé de prévoir beaucoup plus de temps pour les réunions du Conseil afin d'attacher plus d'importance à cet organisme. Les réunions du Conseil auront lieu

le vendredi après-midi 5 juillet 1963

le samedi matin 6 juillet 1963 et

le mardi 9 juillet 1963, toute la journée.

En conséquence, le temps disponible pour les réunions du Bureau sera assez court. De ce fait, il ne sera plus possible, à ces séances, de discuter en détail tous les points de l'ordre du jour prévu pour les réunions du Conseil.

Maintes fois déjà, le Secrétaire général a demandé qu'on lui fasse savoir quels problèmes on aimerait voir traiter, ceci afin d'augmenter l'attrait de la Conférence et son importance. Cette demande est réitérée d'une manière instante.

### **XIXe Congrès International de Chimie pure et appliquée 1963**

#### **Programme scientifique**

Le programme scientifique du Congrès consistera en une vingtaine de conférences qui complèteront les communications sur des sujets variés. Les communications soumises dans la section de la Chimie organique constitueront le thème principal du Congrès: mais certains aspects de la Chimie minérale, de la Chimie analytique, et de la Chimie appliquée seront également examinés.

Chaque division du Congrès comprendra plusieurs sections qui auront, généralement, la possibilité de se réunir pendant la durée du Congrès. La nature spécifique des sujets qui seront examinés dans chacune des sections est indiquée ci-après.

*Soumission des Communications.* Le Congrès ne peut accepter que les communications qui ont un rapport direct avec les divers sujets au programme,



et leur nombre sera strictement limité. De plus amples détails et un dernier bulletin de demande figureront dans la deuxième circulaire; un titre et un bref résumé seront alors requis.

*Le problème linguistique au Congrès.* Il est recommandé que les communications soient soumises en anglais, en français, en allemand ou en russe. Les résumés devront être accompagnés d'une traduction en anglais aux fins de publication.

*Facilités de projection.* De façon à favoriser une bonne projection dans les meilleures conditions possible durant toutes les séances, des dispositions seront prises pour permettre la projection de plaques de lanterne magique de 5 cm × 5 cm seulement, renfermant un film normal de 35 mm. Au cours de certaines séances, la télévision en circuit fermé sera utilisée.

### **Scientific programme of the London Congress 1963**

The scientific programme of the Congress will consist of some 20 invited congress lectures in addition to a wide range of contributed papers. The papers presented in the division of Organic Chemistry will form the main theme of the Congress; but certain aspects of Inorganic Chemistry, Analytical Chemistry, and Applied Chemistry will also be discussed.

Each division of the Congress will comprise a number of sections and, in general, a proportion of these will meet concurrently during the period of the meeting. The specific topics to be discussed in each of the sections are outlined below.

*Submission of Papers.* Only papers that have a direct bearing on the programme topics can be considered and the number accepted for reading at the meeting will be strictly limited. Further details and a final application form will appear in the second circular at which time a title and a short abstract will be requested.

*Congress Languages.* It is recommended that papers be presented in English, French, German, or Russian. Abstracts should be accompanied by an English translation for publication.

*Projection Facilities.* In order to ensure a high standard of projection at all sessions, at some of which closed circuit television will be used, arrangements will be made for the projection of slides only in the size 5 cm × 5 cm (2 in. × 2 in.), enclosing standard 35 mm film.

### **Scope of congress**

#### *A.—Organic Chemistry*

- (1) Reaction Mechanisms
- (2) Physical Methods: to emphasise fundamental developments in techniques and substantial applications to structural problems
- (3) Stereochemistry and Conformational Analysis
- (4) Modern Aspects of Organometallic and Related Compounds
- (5) Developments in Organic Synthesis
- (6) Biogenesis
- (7) Biologically Important Polymers
- (8) Microbiological Products and Antibiotics
- (9) Steroids and Terpenoids

### *B.—Inorganic Chemistry*

- (1) Applications of the Newer Physical Methods (other than X-Ray Crystallography) to Structural Inorganic Chemistry: to include electron spin resonance, nuclear magnetic resonance, other forms of microwave spectroscopy, and polarography
- (2) Inorganic Chemistry of the Solid State
- (3) Inorganic Chemistry of the Molten State

### *C.—Analytical Chemistry*

- (1) Trace Analysis
- (2) Separation Methods
- (3) Electroanalysis
- (4) Teaching of Analytical Chemistry

### *D.—Applied Chemistry*

- (1) Adhesion of Surface Coatings
- (2) Applied Chemistry of the Solid State
- (3) Food Packaging Materials; Toxicological and Analytical Problems
- (4) Industrial Uses of Graphite
- (5) Utilization and Treatment of Wastes by Biological Methods

### *Official address*

All correspondence concerning the Congress should be addressed to:—

Honorary Secretary,  
XIXth International Congress of Pure and Applied Chemistry,  
14 Belgrave Square, London, S.W.1., (GB)

All correspondence concerning the Conference should be addressed to:—

Dr. RUDOLF MORF, Secretary General of IUPAC, c/o  
F. Hoffmann-La Roche & Co. Ltd., Basle 2 (Switzerland)

### *Travel and accommodation*

All correspondence concerning travel and hotel accommodation should be addressed to the nearest branch of Messrs. THOMAS COOK & Son Ltd., who have been appointed the official agents of the Congress.

## **75e ANNIVERSAIRE DE LA SOCIÉTÉ CHIMIQUE DE BELGIQUE ET RÉUNION DU BUREAU DE L'IUPAC**

Comme déjà annoncé à plusieurs reprises, l'Union internationale de Chimie pure et appliquée a saisi l'occasion du 75e Anniversaire de la Société chimique de Belgique pour réunir son Bureau à Bruxelles. C'est la première réunion que l'IUPAC a tenue dans ce pays après la dernière guerre mondiale.

Le Symposium international de Chimie organique, consacré à l'étude des produits naturels, a été un grand succès. Il y eut quelque 700 participants, la plupart venant de l'étranger, des pays voisins surtout. On a compté également un grand nombre de chimistes en provenance des Etats-Unis.

Les organisateurs belges avaient pris le soin d'inviter des chimistes de grande réputation. Onze d'entre eux donnèrent des conférences magistrales ou des conférences de section.

L'ouverture du Symposium a été marquée par une réception dans les nouveaux locaux de la «Maison des Industries chimiques de Belgique» alors que les séances scientifiques se déroulèrent à l'Université libre de Bruxelles, 50, avenue Franklin-D.-Roosevelt.

## IUPAC PUBLICATIONS

Information concerning the publication policy of the International Union of Pure and Applied Chemistry has been given from time to time as it has developed during the last few years (see, for example, Information Bulletins Nos. 5, 7, 8, 9; Comptes Rendus de la XX<sup>e</sup> Conférence; Pure and Applied Chemistry, Vol. 1, No. 1). The purpose of this report is to summarize the present position in the light of the discussions which were held during the Montreal Conference in August 1961.

The journal "Pure and Applied Chemistry", which was launched in September 1960, now constitutes the main medium for publishing and disseminating the scientific proceedings of the Union. The general policy of the Journal is laid down by the Editorial Advisory Board, and the interpretation of this policy in the day-to-day administration of publication affairs is left to the discretion of a small group comprised the Chairman of the Editorial Advisory Board, the Scientific Editor, the Secretary General (IUPAC), and such other members of the Board as it is thought desirable to co-opt. All other members of the Board will, of course, be available for consultation as the need arises.

In special circumstances the publication of scientific material outside the Journal will also be undertaken. In addition, the Comptes Rendus and the Information Bulletin will continue to be published through the office of the Secretary General as in the past.

To reduce delays to a minimum it is essential that requests for publication should be made well before the submission of the manuscript. Division and Section Presidents are reminded that they are required to give the Editor ample notice of any reports from their Bodies, and to keep him informed as to the approximate length of the report and the probable date of submission. Organizers of Congresses and Symposia should note that the question whether or not the Union would publish the proceedings in whole or in part has to be settled before the Executive Committee takes a final decision concerning sponsorship. Therefore, as specified in Information Bulletin No. 11, all applications to the Secretary General for sponsorship should include the following information:

- (i) Title of Congress or Symposium, with sub-divisions if any
- (ii) Section, Commission, or Division sponsoring meeting
- (iii) Proposed date and place
- (iv) Approximate number of participants expected
- (v) Number of papers to be presented, and approximate length
- (vi) Number of specially invited (plenary or sectional) lectures, if any, with provisional list of names
- (vii) Whether financial help from the Union is requested
- (viii) Details of the arrangements being made for the collection of manuscripts (e.g. by whom and by what date)
- (ix) Whether, in the event of the Union not wishing to publish the proceedings, the organizers wish to make other arrangements for publication



A Division, Section or Commission report will be published in the language(s) in which it is submitted, but in the interests of achieving maximum publicity, it should preferably be in English, French, or German. It is sometimes desirable that a translation of key sections of the text (e.g. the explanatory introduction, but not tables and notes which can readily be understood by most chemists in the original) should also be published. After consultation with the Editor, the Section, Division, or Commission President should, whenever possible, arrange for this translation to be prepared by a member of the Body concerned. Translation of Definitive Nomenclature Rules must have also the approval of the Division or Section President and of the Executive Committee. In all cases the published text must indicate which is the official version and which the translation.

The proceedings of meetings will normally be published in English, French, or German. A suitable translation of a contribution in another language should, if possible, be provided by the author(s) or the organizers of the meeting. If available, both the original text and the translation should be provided.

Of the contributions to sponsored meetings, only the main invited (plenary or sectional) lectures will normally be published. The Editorial Advisory Board, or those of its members authorized to act on its behalf, will, however, consider carefully any requests by organizers of meetings for departures from this general policy.

Twenty-five free reprints of all contributions to the Journal will be supplied by the Union's publishers. Those of Division or Commission Reports will be sent to the Section President for distribution at his discretion. The free reprints of individual contributions to symposia will be given to the author, or shared between the authors if there is more than one. Extra copies of reprints of individual contributions may be purchased from the publishers. Bulk orders by authors, Union Officers, or organizers of meetings should be placed as early as possible, and not later than the date assigned for the return of proofs. Free copies of each issue of the journal will automatically be sent by the Secretary General to each National Adhering Body, members of the Executive Committee and the Editorial Advisory Board, Section Presidents, and to Unesco.

The question of reprinting of certain Union publications in other journals is now under review, and it is hoped to make a further announcement after discussions have been held with the publishers.

Fuller details concerning the procedure for the submission of material for publication, and for the preparation of manuscripts, will appear periodically in the Journal (cf. Vol. 4, No. 1).

Any comments or criticisms which will help the Editorial Advisory Board to further the aims of the Union's publications will be welcomed.

H. W. THOMPSON  
B. C. L. WEEDON



## IUPAC Editorial Advisory Board

### *Extract from Chairman's Progress Report, May, 1962*

During the past nine months since the Montreal meeting, much progress has been made, and it seems that our organization for IUPAC publications is now settling down smoothly. Three volumes of the *Journal* are already published, and the fourth volume is expected to be completed by the end of May. Volume 5, and part of volume 6, as well as two supplementary lengthy articles to be issued separately during the autumn, are expected before the end of 1962. As the Union's policy becomes more widely known and understood, we have—with very few exceptions—received general co-operation from all concerned.

### *Revision of contract*

At Montreal it was decided to seek a revision of the contract with Butterworths, particularly with regard to the copyright arrangement for Nomenclature Rules and similar items. It will be recalled that at Montreal the publishers agreed as a matter of urgency to allow reproduction, without claiming a copyright fee, of the tentative rules for biological chemistry, on the understanding that appropriate acknowledgement would be made and that the *final* version would in due course be printed in "*Pure and Applied Chemistry*". Subsequently, permission has also been given to many parties to reprint the new *tables* of atomic weights freely, in order to obtain a universal publicity. There has also been reprinting in several languages, under the original agreement, of the Nomenclature Rules for Inorganic and Organic Chemistry, and of other standards reports on analytical chemistry.

The present contract was drawn up at a time when the success of the new *Journal* was uncertain, and the publishers were reluctant to take full financial risk. An arrangement was therefore made for the reprinting of the Nomenclature Rules freely by recognized national bodies in any language, by payment from the Union to the publisher of a copyright fee. The publishers have now agreed to a revision of the contract so as to eliminate such payments and facilitate the widest possible dissemination of Nomenclature Rules and all similar items which are regarded by the Union as requiring a maximum publicity. Under this new arrangement, it is suggested that:

- (a) The Nomenclature Rules shall be published first in "*Pure and Applied Chemistry*" and *subsequently* in the same or other language in any other recognized *Journal* of a member country, this *Journal* to be approved case by case by IUPAC (Permission to reproduce could be given by reference to the Secretary General, the Chairman of the Editorial Board and Scientific Editor, or to the Executive Committee). The reprint sales of such articles in the IUPAC *Journal* should be in the hands of Butterworths as at present, and the royalty to the Union in respect of such sales should follow the same principle as for other publications. The sales of reprints in any language from *Journals* other than *Pure and Applied Chemistry* would be possible by prior arrangement between the national body concerned, Butterworths and the Union. As a general guide to such agreements, it is suggested that Butterworths should be paid 7½% royalty on the selling price, to which might be added some reasonable sum after taking into account the length of the article, probable sales, and other factors, the total being divided between Butterworths and the Union in the proportion 2:1.

- (b) The reprinting by any parties of any other material published by IUPAC and regarded as essential material for international standards should be treated in a similar way to the Nomenclature Rules under (a), but in each case should be the subject of a separate agreement between the parties concerned.
- (c) *All reprinted articles should carry the appropriate acknowledgement to the Union and Butterworths, and refer where appropriate to the original publication in the IUPAC Journal.*
- (d) For all other works published in the Journal, reprints of them, and any separate publications, the present arrangement will apply, whereby the publisher pays to the Union a royalty of the selling price. An exception to this may be made for the reprints of very short articles of less than 12 pages in length unless these are covered by a separate agreement.

These arrangements therefore allow any recognized national body to reprint the Nomenclature Rules and all similar material in any country, abolish all payment by the Union for such reprinting, increase the revenue of the Union, and require some small payment by bodies or National Societies which may wish to sell extra copies themselves. By suitable arrangement there need be no great delay between the first publication in Pure and Applied Chemistry and later reprinting elsewhere.

At its Rome meeting (November 1961) the Executive Committee approved the above general principles, and a revised contract has been drawn up for immediate signature, and which, if signed, will be deemed to operate from 1 January, 1962.

#### *Income and Sales*

The official return of sales received from Butterworths up to 31 December 1961, shows a substantial sum owed to the Union, and which should have been paid over during April 1962.

An arrangement has now been made, however, for an *annual subscription*. It has been decided to publish 2 volumes each year, with supplementary separate issues as may be necessary. For example in 1962 there will be two such supplements, on Spectroscopic Analytical Data (DUYCKAERTS Commission) and The Determination of Oils and Fats (Applied Section), in both cases perhaps more suitable as separate books than for the Journal.

The effects of the annual subscription plan have not yet been fully felt, and it is to be hoped that with other steps now being taken for greater publicity there may be a substantial increase in the number of regular subscribers.

Discussions have therefore taken place between the publishers, the Scientific Editor and myself about ways of obtaining greater publicity and advertisement. This is considered below.

#### *Publicity and Advertising*

The following steps have been taken to obtain great publicity:

- (i) The publishers have now prepared leaflets giving a full list of publications, explaining the new annual subscription arrangement, and separate leaflets for each major publication. These have been circulated to all members of the Chemical Society and can be sent to others if appropriate lists of addresses can be obtained.

- (ii) The adhering National Committees for Chemistry have been asked to provide lists of libraries which might purchase the Journal, and also invited to distribute information about the Union's publications from time to time. A number of these have already supplied useful information and agreed to co-operate.
- (iii) An article explaining the IUPAC Journal has been prepared by Dr. CAHN, Prof. WEEDON and myself and it is suggested that this might be sent out over the name of Dr. NOYES, as President of the Union for printing in the Proceedings of the Chemical Society (which has agreed to accept it), to "Chemical Engineering News", and after translation into other languages in other appropriate national journals.
- (iv) Organizers of Symposia should be asked to enclose leaflets in their brochures and at the time of the meeting announce to participants the discount rates for purchases of the proceedings of the meeting. Urgent action is needed for Prague, Stockholm, Tokyo and Florence in 1962.
- (v) Attempts should be made to ensure that advertisements for a particular item are directed at the right people, and particular issues sent to the right journals for review.
- (vi) The publishers have been asked to see that "*Pure and Applied Chemistry*" is known to abstracting bodies such as "Current Chemical Papers", "Chemical Abstracts", "Current Chemical Titles", and "Index Chemicus".
- (vii) Articles explaining the whole procedure for publication under IUPAC have been prepared by the Scientific Editor and myself for publication as soon as possible in both the *Comptes Rendus* and *Information Bulletin*.

Any further suggestions for increasing publicity would be welcomed.

#### *Present Position and Future Publication Commitments*

Volumes 1, 2 and 3 are now complete. Volume 4, part 1, was issued some months ago. The likely programme is as follows:

Vol. 4, parts 2, 3, 4,	Macromolecular Symposium	May 1962
Vol. 5, parts 1-2	Wood Symposium	July 1962
Vol. 5, parts 3-4	Montreal Lectures	Sept. 1962
Vol. 6 and 7	Solubility Report (FEITKNECHT), translation not yet received	
	Co-ordination Chemistry (Stockholm)	
	Natural Products (Prague)	
	Pharmaceutical Chemistry (Florence)	
	Spectroscopy (Tokyo)	
Vols. 8 and 9	London Meeting 1963	
	Fungi Symposium (Dublin 1963)	
	Natural Products (Japan 1964)	

Reports from Commissions will be included in the issues as they become available. Some from the Analytical Section are already in hand, and the Atomic Weights Report will shortly be available. In addition, it is expected to publish, during the autumn of 1962, separate books on Spectrophotometric data on complexes for analysis (DUYCKAERTS), and Determination of Oils and Fats (Applied Section). These have been delayed, in the former case owing to delay by the authors in sending drawings, and in the latter the report is still incomplete.

### *General Matters*

A good deal of delay and trouble have arisen because authors have delivered their manuscripts very much behind schedule, and sometimes the text and drawings were quite unsatisfactory. Organizers of Symposia must be asked firmly to see that manuscripts are delivered at the time of the meeting, and that authors follow the instructions laid down in the printed leaflet which has now been prepared and copies of which are now available for distribution.

It is certain that the name of the Union has become better known in recent years, although there is still much to be done. The question may be raised, however, whether it is wise to grant sponsorship to Symposia too freely. It is becoming normal for anyone organizing a symposium to seek sponsorship by IUPAC as a means of enhancing prestige. This is a good thing but it will only be effective, in the long run, if some restraint is imposed so as to maintain a high standard and scientific level. For this reason I feel that the Executive Committee should consider this matter carefully and attempt to satisfy itself before sponsorship is granted, even when no financial grant is made. It is clearly impossible for the Union to publish even the main lectures at all Symposia, and it is perhaps not desirable that it should attach its name to all of them.

I must record my own thanks and also the debt owed by the Editorial Board to the scientific Editor, Prof. WEEDON, for his efficiency and tolerance in dealing with our many problems, and to Dr. CAHN also for much helpful advice and co-operation.

H. W. THOMPSON



## THE IUPAC JOURNAL "PURE AND APPLIED CHEMISTRY"

By W. A. Noyes

(President, the Union of Pure and Applied Chemistry)

The new journal *Pure and Applied Chemistry* is not yet as well known as it should be. This is a pity, for it is issued by the International Union of Pure and Applied Chemistry (IUPAC) and chemists should know what is being done by their international union. Also, it is a somewhat novel type of publication. New journals are not always welcome these days, and it may therefore be useful to explain why this one was established, and how it functions.

The main activities of IUPAC are to organise and sponsor Symposia, and through its Commissions to issue nomenclature rules, lists of symbols, tables of data, analytical methods, etc., on which international agreement is desirable. Before 1957 the reports of Symposia, nomenclature rules, etc., were published either in the *Comptes rendus* of the Union—which had a very restricted circulation—or were scattered in a wide variety of scientific journals and books. The Union had to bear the heavy cost of its *Comptes rendus*, with no compensating return from the more popular features; and it was impossible to obtain anywhere a comprehensive survey, or even a fleeting impression, of the Union's total activities. Nor had the Union any machinery whereby it could bring its work to the notice of chemists in general.

In an attempt to improve this situation, the Union in 1957 appointed Butterworths Scientific Publications as its official publisher. A IUPAC Publications Committee was set up, with Dr. H. W. Thompson as Chairman, and Dr. R. S. Cahn as Secretary, and each of the Union's publications was sold as a separate book under its standard crest. Much success was achieved, as judged by the large sale of a number of the items running into thousands, and the Union's activities became more widely known. However, full success was hampered by the fact that so much—and not the least important or interesting—of the Union's work consists in Commission recommendations covering only a few pages, and the difficulties of advertising and obtaining a reasonable price for such small publications are notorious. Some copyright arrangements also raised difficulties, but the Union purchased, at considerable cost to itself, for the benefit of scientific organisations everywhere, the translation and reproduction rights of all the main nomenclature reports. Also, it was still difficult to get an overall picture of the Union's activities, covering as they do such a very wide field.

Accordingly, in 1960, *Pure and Applied Chemistry* was started as a new journal, published by Butterworths Scientific Publications.\* This contains all Symposia reports selected for publication from those held under the Union's sponsorship, as well as the Commission reports (nomenclature, symbols, tables of data, etc.), thus providing the comprehensive survey for those who need to know the full scope and detail of the scientific work of the Unions. The financial and administrative business of the Union, composition of Commissions, etc., will continue to be published in its *Comptes rendus* and *Bulletin*, the former being put out after each main Conference and the latter at more frequent intervals. It is likely that the *Bulletin* may also be used for the preliminary dissemination of *tentative* nomenclature rules and standard procedures before they are finally agreed for printing in the Journal itself.

A novel feature of *Pure and Applied Chemistry* is the recognition from the start that, while reference libraries and large laboratories will wish to have

the complete journal, its miscellaneous content may not be required by most individual chemists. A regular magnified "off-print" service was therefore arranged, whereby each item of each issue is available for purchase separately, the Symposia reports and large sets of nomenclature reports as bound books, and the shorter items in the format of normal reprints. Contents of past and future issues, with prices for separate purchase, are given in the Journal and through the normal advertising media of the publishing trade.

To supervise the Journal, the Union has set up an Editorial Board of international authority, with Dr. H. W. Thompson (St. John's College, Oxford, England) as Chairman and Professor B. C. L. Weedon (Queen Mary College, Mile End Road, London, E.1) as Scientific Editor, to whom reference can be made on the scientific aspects of the Journal and about any publications which are contemplated in it from Commissions or the organisers of Symposia sponsored by the Union. The new venture seems to provide advantages to all parties. It provides a better dissemination of the Union's work, individual chemists can obtain the complete journal or separate items as they wish, reprints of their Symposia papers can be obtained by authors at discount rates, the Union is freed from much financial liability, and the publishers have only one journal to make instead of a varied miscellany.

With a journal of this unusual kind it is not surprising that a number of problems of detailed policy should arise in the early stages, but they seem so far to have been overcome. For example, arrangements have now been made with the publishers to allow reproduction of basic scientific data such as the atomic weight tables, nomenclature rules, etc., in recognised scientific journals in all countries. However, they must first be printed in *Pure and Applied Chemistry*, permission to reproduce must be obtained from the Union and publishers, and appropriate acknowledgement must be made to the source of the data. Normally, publication in the Journal is only in one of the usual European languages, and as a general policy only the main lectures at Symposia will be printed. While the Union reserves the right to publish in its Journal all or part of the proceedings of all Symposia which it sponsors or organises, it does not always exercise this right, and this aspect must be clarified by the organisers with the Secretary General of the Union when the meeting is being planned. Delegates to such Symposia will be allowed a substantial discount on the printed proceedings.

At the time of writing of this article, three volumes of *Pure and Applied Chemistry* have appeared, and the fourth will shortly be completed. They include reports on standard nomenclature and presentation of data in chromatography, dissociation constants of acids, procedures for microchemical analysis, and the calibration of spectrometers in the ultraviolet and infrared. Topics of Symposia include radioactivation analysis, the organic chemistry of natural products, macromolecules, enzymes, thermochemistry and thermodynamics, molecular spectroscopy, the determination of toxic substances, and wood chemistry. Commitments for other volumes already extend to 1964.

\* All enquiries should be addressed to Butterworths Scientific Publications, 4-5 Bell Yard, London, W.C.2, England. The subscription rate is £ 6.0.0 or 18 U.S. dollars per volume of about 600 pages. Two volumes per year are planned, with supplements if necessary, and a system for annual subscriptions is being arranged.

## International Symposium on Pharmaceutical Chemistry

*under the sponsorship of the International Union of Pure and Applied Chemistry (IUPAC) to be held in Florence (Italy)  
(Monday 17, Tuesday 18 and Wednesday 19 September, 1962)*

The programme will include sixteen lectures of 45 minutes each, followed by discussion. No provision will be made for sections. Simultaneous translation into Italian, French and English will be available.

### *Monday, 17 September 1962*

9.30 a.m.–10.00 a.m.: Opening Session

10.30 a.m.–11.15 a.m.: First Session

*Chairman:* Prof. A. ROSSI FANELLI, University of Rome. TH. BÜCHER, Physiologisch-chemisches Institut der Philipps-Universität, Marburg/Lahn. "Co-ordination of Chemical Processes within the Living Cell."

11.30 a.m.–12.15 a.m.: Second Session

*Chairman:* Prof. G. GIACOMELLO, University of Rome. H.R. ING, Dept. of Pharmacology, University of Oxford. "Drug-Receptor Interaction."

3.00 p.m.–3.45 p.m.: Third Session

*Chairman:* Prof. E.J. KING, School of Medicine, London. J. PORATH, Biokemiska Institutionen, Uppsala Universitet. "Some Recently Developed Fractionation Procedures and their Application to Peptide and Protein Hormones."

4.00 p.m.–4.45 p.m.: Fourth Session

*Chairman:* Prof. L. PANIZZI, University of Rome. K. HOFMANN, School of Medicine, University of Pittsburg. "Structure-Function Relations in the Corticotropin Series."

5.00 p.m.–5.45 p.m.: Fifth Session

*Chairman:* Prof. R. FUSCO, Polytechnic School of Milan. R. SCHWYZER, Pharmazeutisch-Chemisches Lab. der Ciba A.G., Basel. "Chemical Structure and Biological Activity in the Field of Polypeptide Hormones."

### *Tuesday, 18 September*

9.30 a.m.–10.15 a.m.: Sixth Session

*Chairman:* Prof. A. QUILICO, Polytechnic School of Milan. J. SHEEHAN, Dept. of Chemistry, Massachusetts Institute of Technology, Cambridge, U.S.A. "Peptide Type Antibiotics."

10.30 a.m.–11.15 a.m.: Seventh Session

*Chairman:* Prof. B. Chain, Istituto Superiore di Sanità. M.M. SHEMYAKIN, M.N. KOLOSOV, Institute for Chemistry, USSR Academy of Sciences, Moscow. "Synthetic Approaches to the Relation between Structure and Activity of Some Antibiotics."

11.30 a.m.–12.15 a.m.: Eighth Session

*Chairman:* Prof. V.E. VERKADE, Technical University of Delft. V. PRELOG, Organisch-chemisches Institut der Eidgenössischen Technischen Hochschule, Zürich. "Iron containing Antibiotics and Microbial Growth Factors."

3.00 p.m.–3.45 p.m.: Ninth Session

*Chairman:* Prof. A. GANDINI, University of Genoa. TH. WIELAND, Institut für Organische Chemie der Johann-Wolfgang-Goethe-Universität, Frankfurt/Main. "Chemical Syntheses and Modifications of Cyclopeptides."



4.00 p.m.-4.45 p.m.: *Tenth Session*

*Chairman:* Prof. G. B. MARINI BETTOLO, Istituto Superiore di Sanità. F. BERGEL, Chester Beatty Research Institute, Royal Cancer Hospital, London. "Attempts at Chemotherapy of Neoplastic and Related Diseases."

5.00 p.m.-5.45 p.m.: *Eleventh Session*

*Chairman:* Prof. J. BÜCHI, Pharmazeutisches Institut der Eidgenössischen Technischen Hochschule, Zürich. L. MUSAJO, Istituto di Chimica Farmaceutica, Università di Padova. "Photoreactions of Flavinic Co-enzymes."

8.00 p.m. Official dinner offered by the Organizing Committee to the Lecturers and Guests.

*Wednesday, 19 September*

9.30 a.m.-10.15 a.m.: *Twelfth Session*

*Chairman:* Prof. R. COURRIER, Institut de France. D. BOVET, Istituto Superiore di Sanità. "Synthetic Drugs Active on the Central Nervous System."

10.30 a.m.-11.15 a.m.: *Thirteenth Session*

*Chairman:* Prof. G. TAPPI, University of Turin. E. JUCKER, Sandoz A.G., Basle. "Recent Pharmaceutical Research on Hydrazine Derivatives."

11.30 a.m.-12.15 a.m.: *Fourteenth Session*

*Chairman:* Prof. H. ERDTMAN, Institute of Technology, Stockholm. P. PRATESI, Istituto Chimica Farmaceutica, Università di Pavia. "Chemical Structure and Biological Activity of Catecholamines."

3.00 p.m.-3.45 p.m.: *Fifteenth Session*

*Chairman:* Prof. M. COVELLI, University of Naples. M. M. JANOT, Faculté de Pharmacie de l'Université de Paris. "Recent Acquisitions in the Field of Alkaloids from Picalima Nitida, from the Vinca and Malouetia."

4.00 p.m.-4.45 p.m.: *Sixteenth Session*

*Chairman:* Prof. H. SCHMID, University of Zürich. A. R. BATTERSBY, Dep. of Organic Chemistry, University of Bristol. "Recent Researches on Indole Alkaloids."

5.00 p.m.-6.00 p.m. *Closing Session*

9.00 p.m. Reception given by the Italian Society of Pharmaceutical Science in Palazza Vecchio and Galleria degli Uffizi

*Thursday, 20 September*

Optional: FULL DAY: Excursion to Siena, San Gimignano and visit to the Istituto Sieroterapico Toscano

*Registration fee*

Registration fee for active membership Lit. 12.000 or \$ 20

Registration fee for associate membership Lit. 8.000 or \$ 14

(any person accompanying an active member)

Active member will receive the volume containing the summaries of lectures.

The full text of the lectures will be published on behalf of IUPAC.

Registrations will be accepted until 30 July, after this expiration date hotel accommodations in Florence will be very difficult.

For information apply to: Prof. Alberto Soldi, Executive Secretary of the Italian Society of Pharmaceutical Science, Via Giorgio Jan 18, Milan, phone 270.662



## REPORT ON THE ACTIVITY OF THE SECTION OF PHYSICAL CHEMISTRY

*From Montreal (August 1961) until Brussels (June 1962)*

This Section has been active through its Commissions. Section Committee sessions did not take place.

### **I. 1 Commission on Physico-Chemical Symbols and Terminology**

The activity was restricted by the retirement of the President. ISO/TC12 has been informed about the decisions on Gibbs and Helmholtz energy. The same will be done with IUPAP. A report on Symbols for chemical engineers will be ready in 1963. Problems like the revision of the manual as for more strict definitions and preferred units must be adjourned.

### **I. 2 Commission on Thermodynamics and Thermochemistry**

The Bulletin 1962 has been distributed, that for 1963 has begun. Experimental Thermochemistry II (SKINNER) has just appeared, I (McCULLOUGH) is under preparation. Experimental Thermodynamics (VODAR) is under preparation. Mr. NEWITT has remained in the Commission in order to prepare a table on the properties of technical important gases.

Task-groups have been formed for the preparation of standard values. In 1963, 18–22 July, after the International Congress a Symposium will be held in Lund (Sweden).

### **I. 3 Commission on Electrochemistry**

*Subcommission I, Symbols and Terminology:* The reports in French have been published. The work on electrode-kinetics will be taken up in Rome, together with Citec, in September 1962. English translations which had been retarded by the question of "tension" will be resumed.

*Subcommission II, Electrochemical Thermodynamics:* tables of enthalpies and Gibbs-energies are enlarged (HAMER). This Commission is identical to that of Citec.

*Subcommission III, Electrochemical Kinetics, Prof. H. Fischer:* The Commission works in collaboration with that of the Analytical Section on kinetic quantities like transfer coefficient or exchange current. Basis is a Japanese report.

### **I. 4 Commission on Macromolecules**

No report available.

### **I. 5 Commission on Physico-Chemical Data and Standards**

In co-operation with the Calorimetry Conference, the Commission held a second Symposium on Purity Control by Thermal Analysis at Ottawa on 18 August, 1961. This symposium took the form of a detailed discussion of the results of the international collaboration on the thermal analysis of four benzene preparations that had been prepared and distributed in accordance with a recommendation made at the conclusion of the first symposium, at Amsterdam in 1957. This was a very fruitful and illuminating discussion which was recorded verbatim. Dr. C. P. SAYLOR subsequently transcribed the

record with the object of permitting each participant to edit his contribution prior to the preparation of a somewhat condensed version of the symposium for publication. This manuscript, when published, may be considered as the first of a possible series of publications on methods of purification and purity control which the Commission on Thermodynamics and Thermochemistry has suggested for preparation by our Commission.

### **I. 6 Commission on Molecular Structure and Spectroscopy**

*Subcommission Infrared Frequency Standards:* The tables are sold well; an extension from 600 to  $10\text{ cm}^{-1}$  is under preparation.

*Subcommission Infrared Intensity Standards:* Experimental and theoretical preparatory work is going on.

*Subcommission Ultraviolet Spectroscopy:* The selection of standard substances is under work.

*Subcommission Units and Terminology (Prof. HERZBERG):* This Commission will work intensively in Tokyo.

Two very important problems concern nuclear magnetic resonance and rotation dispersion. Reports on these topics are now under examination for submission at the Tokyo meeting.

### **I. 7 Joint Commission on Applied Radioactivity**

A report for the period from 1958 is available. According to this the present subjects are the standardization of radioisotopes, means for the dissemination of information and the organization of Symposia. At a Symposium in Basle on 4 November, 1961, the following points have been touched: Radium as a standard is approved. In the second half of 1962 a Symposium on dating will be held in Vienna, together with a session of the Commission. The following Symposia have been decided: One on Isotope-effects, one on Radio-isotopes in Pharmacy (1963), one on Tracers in Biology (1963 and 64) and one on Radiation Sources and the needs of Hard- $\gamma$  Radiation. It is stated that the existing radiation sources are used exhaustively.

An enquiry on the actions of radiation on human beings is held. The radium sample of HÖNIGSCHMID was taken over by the International Bureau of Weight and Measure from the Radiation Institute of Paris without the authorization of ICSU.

### **I. 8 Commission on Colloid and Surface Chemistry**

The Commission has been formed and consists of the Professors ALEXANDER, DUBININ, DERVICHIAN, GROTH, HORIUTI, OVERBEEK, RIDEAL, SCHWAB and ZISMAN. Four Subcommissions will be formed. One for Colloid systems (OVERBEEK), one for liquid interphases (ALEXANDER), one for heterogeneous catalysis (HORIUTI) and one for systems solid-gas (presumably DUBININ).

In July or August 1962 a Symposium is planned to be held in England or in September or October in the United States of America.

Prof. Dr. G.-M. SCHWAB, President

# REPORT ON THE ACTIVITY OF THE SECTION OF INORGANIC CHEMISTRY

*From Montreal (August 1961) until Brussels (June 1962)*

## II. 1 Commission on Atomic Weights

The Commission on Atomic Weights met in Montreal in August 1961 on the occasion of the IUPAC Conference. This was one of the most important sessions of the Commission in recent years, as the recommendation was then made to change the basis of atomic weights, in keeping with the previous IUPAP decision, from  $0 = 16$  to  $^{12}\text{C} = 12$ .

On this occasion all available evidence in support of the new table was subjected to a detailed review by CAMERON and WICHERS. The final version of this very extensive report will be published shortly. Until its meeting at the 1963 IUPAC conference, the Commission will check on minor adjustments and revision of the new table. The Commission has proposed that its name be changed to "Chemical Commission on Atomic Masses". This proposal was not endorsed by the Commission on Nomenclature. It is linked with the question of whether to abandon the term "atomic weight" in general usage. The Commission will consider the nomenclature problem further and it is also in the agenda for the Bureau Meeting in Brussels.

The Commission has learned with deep regret of the death of one of its most distinguished members, Prof. H. V. A. BRISCOE. Steps are being taken to replace him.

## II. 2 Commission on the Nomenclature of Inorganic Compounds

Owing to financial stringency no meetings of the Commission on the Nomenclature of Inorganic Chemistry or of any of its Sub-Commissions were held in the year June 1961 to June 1962. However, Professor K. A. Jensen, the Chairman of the Commission attended the Symposium on chemical nomenclature in Columbus, Ohio, during the summer of 1961.

During the year June 1962–June 1963, all the Sub-Commissions of the Commission on the Nomenclature of Inorganic Chemistry will meet in Copenhagen during the period 1 July to 4 July. At this meeting it is hoped to arrive at the formulation of final rules for the nomenclature of organometallic compounds and to formulate preliminary ideas on the nomenclature of hydrides and inorganic chain compounds, and of organic boron, phosphorus and arsenic compounds. The Sub-Commission on «Group Names» which has the task of defining such matters as what should be called transition metals and which should be called 'A' and 'B' Sub-Groups in the Periodic Table will also meet to make preliminary suggestions. The work of the Sub-Commissions will be considered by the whole Commission at a meeting to be held in London at the time of the IUPAC Conference, 1963, which falls just outside the period of this report.

## II. 3 Commission on High Temperatures and Refractories

Since the Montreal meeting the High Temperature Commission (Condensed States) has been specially concerned with the following tasks:

(1) *Bibliographical work.* This has been continued with the collaboration of 10 specialists and now extends to 12 countries (Australia, Austria, Canada,



France, Germany, Great Britain, Netherlands, India, Japan, the Scandinavian Countries, United States and the USSR.

Prof. HAGG of the University of Uppsala, who was responsible for the Scandinavian Countries, has been replaced at his own request by Prof. FLOOD of Trondhjem.

Further contacts have been made with a view to extending this activity. The bibliographies are being produced by the National Bureau of Standards for English speaking countries (1000 copies) and by the Solar Energy Laboratory at Mountlouis for other countries (500 copies). This involves no charge to IUPAC funds.

(2) *Tables of Constants*. Work on this subject has been commenced by Prof. TROMBE and Dr. FOEX, who are collecting material relating to a wide range of physical measurements relevant to the field of high temperatures. This activity will be expanded in the course of the coming year and further collaborators will become engaged on it.

(3) *Organization of Colloquia*. The symposium on "Plasmas and their Applications", which it was provisionally planned to hold during the London Congress in 1963 cannot be fitted into the programme. It will therefore be arranged for a later date; probably in 1965. The Commission is proposing that patronage be extended to the Symposium on High Temperatures which is to be held at Asilomar, California, in September 1963.

The Sub-Commission on Gases has also interested itself in the above activities and Prof. BREWER has participated in the bibliographical work.

## II. 4 Commission on Geochemistry

The relationship between this Commission and the proposed Inter-Union Commission on Geochemistry is still under discussion. Because of the uncertainty with respect to the organization and functions of the proposed Inter-Union Commission, and because there were no pressing matters of business, it was decided not to hold the meeting of the Commission that was originally planned for Göttingen in the summer of 1962.

Prof. H.J. Emeléus, President

### REPORT ON THE ACTIVITY OF THE SECTION OF ORGANIC CHEMISTRY

*From Montreal (August 1961) until Brussels (June 1962)*

The Section Committee had its last meeting at Montreal in 1961 when four new members were elected. Following this meeting the members have discussed by correspondence the most suitable number of members for the section and it has been unanimously agreed that it should be increased by at least one and that Prof. A. KJAER, Copenhagen, would be the man of choice. There has also been considerable correspondence concerning the Symposia in Brussels, Florence and Prague as well as that in Japan which is planned to be held 1964 and which will be devoted to Natural Products Chemistry. The Organizing Committee has come to the conclusion that the most suitable period for this Symposium would be 12-18 April 1964. It is planned to be held in Kyoto.

There have been some preliminary discussions between Prof. T.S. WHEELER, Dublin, and the President regarding a Symposium in Dublin. It has been agreed that it should deal mainly with Fermentation chemistry but that some lectures should be devoted to pure organic subjects of interest to the Fermentation industry. It is a matter of some concern that most of the



recent Symposia sponsored by IUPAC have dealt almost exclusively with the chemistry of Natural Products. The Symposium on Dynamic Stereochemistry arranged by our Canadian colleagues as part of the Montreal Congress, therefore, was greeted with satisfaction.

### **III. 1 Commission on the Nomenclature of Organic Chemistry**

The Commission on the Nomenclature of Organic Chemistry met at Columbus (Ohio) on 20–26 July 1961, thus immediately before the Montreal Conference; this meeting was made possible through the generous financial support of the United States Air Force. The main subject was the preparation of Section C of the revision and extension of the nomenclature of organic chemistry. This Section deals with the nomenclature of compounds containing characteristic groups (halogen derivatives, alcohols and phenols, aldehydes, ketones, carboxylic acids, compounds containing sulphur, compounds containing nitrogen, etc.). In the course of the following months a tentative version of this Section's Report has been made ready for the printer. It is hoped that this fairly large document will be available for distribution among the national organizations adhering to IUPAC in the Autumn of 1962.

The meeting of the Commission was followed by a Symposium on Nomenclature at Columbus (Ohio) organized by the Commission on Nomenclature of the American National Academy of Sciences—National Research Council Division of Chemistry and Chemical Technology, in association with Chemical Abstracts Service and the American Chemical Society Nomenclature Committees. This Symposium was greatly appreciated by the members of the Commission because it dealt with topics which still need further consideration: nomenclature of organo-metallic compounds, organo-phosphorous compounds, organo-boron compounds, etc. (Section D of the new rules for nomenclature) and stereochemical nomenclature (Section E of the new rules).

This Commission regrets the loss of one of its members, Prof. Dr. F. RICHTER, who died at his home in Frankfurt/Main on 22 November 1961. His contributions to the work of the Commission have been many and important. His extensive knowledge of nomenclature, of chemical documentation as a whole—he was for many years the editor of Beilstein's *Handbuch der organischen Chemie*—and of many other branches of science, his scholarship, his wisdom and his friendliness will always be remembered by his colleagues.

The IUPAC Commission on Codification, Cipherng, and Punched Card Techniques did not meet after the publication of its "Rules for IUPAC Notation for Organic Compounds" in the end of 1961.

H. ERDTMAN

### **REPORT ON THE ACTIVITY OF THE SECTION OF BIOLOGICAL CHEMISTRY**

*From Montreal (August 1961) until Brussels (June 1962)*

There is not much to report of the Section's activities since Montreal. There has been no meeting of the Section Committee since that time. The Nomenclature Commission (President: Prof. KLYNE) wishes to form a Joint Com-

mission with the International Union of Biochemistry. A report from that Commission is set out below. The Protein Commission has been virtually inactive, and its President (Dr. BAILEY) finds it very difficult to get any action out of members of the Commission. The Clinical Chemistry Commission (President: Dr. FREEMAN) is holding an International Congress in Detroit in late August or early September of 1963. Its Secretary (Dr. BERTIL JOSEPHSON, Stockholm) has collected the information and prepared a document setting out the Officers and Committees of all the adhering Societies of Clinical Chemistry, throughout the world, which he has been able to obtain by extensive enquiry.

#### **IV. 1 Commission on the Nomenclature of Biological Chemistry**

- (1) Close relations are being maintained with the IUB Editors' Commission.
- (2) *Abbreviations*. We have received only minor suggestions for amendment. The IUB Editors' Commission has formally accepted these abbreviations.
- (3) *Lipids*. A National Academy of Sciences/National Research Council Committee in the US is dealing with this matter (Chairman: Dr. W. LANDS). They will make their proposals known to us.
- (4) *Quinones with polyisoprenoid side-chains*. This Sub-Committee has started work.
- (5, 6) *Cyclitols and folic acid derivatives*. Sub-Committees have been appointed and are ready to start work.
- (7) *Vitamins A and E*. Some discussion by correspondence.
- (8) *Steroids*. Work is continuing on the Basle proposals (extension of existing rules) by KLYNE with CAHN of the Organic Commission.
- (9) The United States NAS/NRC will probably set up a clearing house for proposals regarding biochemical nomenclature within the US, because so many disciplines are involved. KLYNE attended a meeting in Washington in February as a guest, to discuss this matter. Although the proposed clearing house will strictly speaking be a US affair, it can help IUPAC and IUB considerably.

#### **IV. 2 Protein Commission**

No report

#### **IV. 3 Commission on Clinical Chemistry**

International Congress arranged for Detroit 1963.

List of Officers and Committee Members of Societies of Clinical Chemistry attached. Statutes and by-laws for the Federation are being reviewed.

The Commission has actively pursued a programme of assisting and encouraging the establishment of new national societies of clinical chemistry, in order to raise the professional standards of clinical chemistry training, practice, and service throughout the world. A common meeting ground has been established in the International Federation of Clinical Chemistry.

Three new Societies have been formed, in Australia, Czechoslovakia and Japan.

Commission members are active in disseminating information on the Vth International Congress of Clinical Chemistry through their national journals and society affiliations.

The programme on international comparison of clinical chemistry methods and standards has continued under the direction of Professor MACLAGAN

(GB) and the results of the current tests are being made ready for publication in the society journals of Commission adherents.

E. J. KING, President

## **REPORT ON THE ACTIVITY OF THE SECTION OF APPLIED CHEMISTRY**

*From Montreal (August 1961) until Brussels (June 1962)*

### **Section Committee**

Following the agreement by the Council of the Union in August 1961 to the proposed modified structure of the Applied Chemistry Section (see C.R. 21st Conference, p. 178, 179), attention has been directed to the implementation of the authorized changes. In particular, consideration has been given to improvement of the geographical representation on the Section Committee for which purpose a maximum of six elected members were permitted. In order to allow some latitude for the change in officers in 1963 the Section Committee decided to elect only 4 additional members. Dr. STURM (Switzerland) had already been appointed a member of the Executive Committee of the Section so that left 3 members to be elected.

From a survey of the members of the Section and Division Committees and of the Commissions it was decided to appoint an additional committee member from each of the following countries:—Germany, Russia and Sweden. Invitations for nominations are being made by the Secretary-General to the appropriate national Adhering Bodies.

The Section Committee also considered it wise to elect a second Vice-President; the result will shortly be announced.

### **Information Bureau on Dangerous Substances**

A proposal for the establishment of an Information Bureau on Dangerous Substances submitted by Dr. A. L. G. REES (Australia) was considered by the Section Committee and by the Toxicology and Industrial Hygiene Division in Montreal (August 1961).

Following further discussion by an ad hoc committee consisting of Dr. A. L. G. REES, Prof. R. TRUHAUT, Prof. T. URBANSKI, Dr. J. C. GAGE and Dr. J. H. BUSHILL, a detailed statement was prepared by Dr. REES which was submitted for comments to the Toxicology and Industrial Hygiene Division by Dr. GAGE, Chairman of that Division. Other Divisions were also informed. A comprehensive statement embracing the comments received to date has been incorporated in a document prepared by Dr. GAGE.

These documents are being submitted to the Bureau with the recommendation that they be forwarded to the Adhering Bodies for their comments in order that an assessment may be made of the need for such an Information Bureau and the level of support that could be expected from national, governmental or industrial sources.

### **London Congress 1963**

Of the 5 subjects for discussion under the heading of Applied Chemistry, 3 are sponsored by six Divisions of the Applied Chemistry Section of IUPAC.

The intended activities of the remaining Divisions at the time of the London Congress 1963 are reported below (see Pesticides, Oils and Fats, and Pulp, Paper and Board Divisions).



## **VI. 1 Food Division**

*The Trace Elements Commission* is completing its report on methods of determining Mercury, Lead and Arsenic in food. The personnel of the Commission will then be discharged when permission is desired to appoint new personnel to study methods of determining selenium, boron and fluorine in food.

*The Food Additives Commission* is proceeding with its task of accumulating information on the subject from different countries particularly concerning permitted additives, tolerances, specifications and analytical controls.

## **VI. 2 Fermentation Industries Division**

The two Commissions attached to this Division are expected to terminate their studies in time for the London Conference 1963.

## **VI. 3 Oils and Fats Division**

This Division has continued its study of methods of analysis of fats. Methods of determining the  $\alpha$  monoglycerides and traces of moisture in fats have been agreed.

This Division desires to meet in Holland rather than in London in 1963 on the understanding that there would be no extra expense to the Union.

## **VI. 4 Water, Sewage and Industrial Wastes Division**

Further editorial work on the publication "Re-use of Waste Waters in Industry" has been completed and the text is ready to go to the printers. A joint meeting with the Fermentation Industries Division as part of the London Congress 1963 is being organized.

## **VI. 5 Toxicology and Industrial Hygiene Division**

Apart from continuing with the study of methods of determining toxic materials in the atmosphere, this Division is desirous of taking part in the Second Symposium on "Tolerance limits of toxic substances in industrial atmospheres and in biological materials". This would represent no cost to the Union. This symposium is to be held in February 1963 in Paris under the joint patronage of the "International Labour Organisation," "The Permanent Commission and International Association of Occupational Health" and, it is hoped, of IUPAC. Application is now made for the above meeting to be under the aegis of IUPAC.

## **VI. 6 Pesticides Division**

This Division is organizing an International Congress in 1963 in London to follow immediately after the main London Congress.

## **VI. 7 Plastics and High Polymers Division**

The Plastics and High Polymers Division met in Paris in May (1962) at no cost to the Union, during the Rubber and Plastics Conference which was co-sponsored by IUPAC. Eleven members of the Division presented 12 of the 54 papers on the programme.

Documents are being prepared on a variety of subjects including:—

- (1) Definition of transition temperatures of plastics



- (2) Methods of measuring crystallinity of polymers and the relationship of physical properties to crystallinity.
- (3) Infrared spectra of polymers.
- (4) A supplement to the publication "Classifications of High Polymers".
- (5) Food and Drug Laws, Customs Classifications and Plastics Production Statistics.

## **VI. 8 Organic Coatings Division**

This Division met in June 1962 in Copenhagen when its Sub-Committee on Analytical Methods outlined various accepted methods to be submitted to the Oils and Fats Division for incorporation in the publication on "Methods of Analysis of Oils and Fats." The Sub-Committees on "Testing Procedures" and on "Terminology" are each preparing documents on their respective subjects with a view to ultimate publication.

## **VI. 9 Pulp, Paper and Board Division**

This Division desires permission to organize a Symposium on the "Chemistry of Paper Making" to precede the London Congress and wishes to know whether any financial assistance may be expected from the Union.

In accordance with the new structure of the Section agreed by Council in 1961, this Division desires to improve its representation of the Pulp, Paper and Board Industry by having on its Committee a member from USSR and from Japan.

J. H. BUSHILL, President

## **SYMBOLS NOMENCLATURE AND TERMINOLOGY IN THE FIELD OF SPECTROSCOPY**

Dear Professor Noyes

According to a letter recently received from Dr. RUDOLF MORE, you have expressed interest and concern as to what the Commission of Molecular Structure and Spectroscopy, IUPAC, might have in progress in the way of a study of the definitions, symbols, nomenclature and terminology in the field of spectroscopy. The language of spectroscopy is of course in a state of some turmoil and the Commission has a sub-commission, consisting of most of the titular members of the Commission plus some others coopted for the purpose, now considering such a study. The sections of the minutes of the Commission's last meeting (Montreal, 1961) dealing with this matter are attached hereto (Agenda Item 7).

As the attached item indicates, Dr. G. HERZBERG occupies various positions of importance in the several bodies dealing with spectroscopic units, terminology and related topics. In view of Dr. HERZBERG's standing as a scientist and his authoritative works on spectroscopy, we are fortunate in having him as Advisory Councillor to the Commission on Molecular Structure and Spectroscopy.

One essential aspect to problems of spectroscopic notation is the large number of sciences for which spectroscopy is a research tool. It is thus important to make sure that conventions dealing with units, symbols and so on are agreeable to workers in many fields, and that establishment of such conventions be carried out by joint action of representatives from dif-

ferent sciences. This is a major *raison d'être* of the Triple Commission on Spectroscopy of IAU, IUPAC and IUPAP. Fortunately for purposes of unity, Dr. HERZBERG is President of the Triple Commission (he is an IAU member thereof) and Prof. H. H. NIELSEN, the Secretary, is also Chairman of the Commission on Symbols, Units and Nomenclature of IUPAP. An appropriate excerpt from the minutes of the last meeting of the Triple Commission is also attached hereto.

The purpose of the above remarks is to indicate that the machinery for making recommendations about spectroscopic units, symbols, etc., is in existence and is very well staffed from both a broad point of view and from the specialized view of the chemical spectroscopist. What is perhaps needed more than anything else is to have chemists who are concerned about particular problems of this kind to let their representatives on the IUPAC Commission and on the Triple Commission know their views. Specifically I should like to solicit such comments from yourself and from any of your associates, such as Prof. DUNCAN, for example, who is closely concerned with spectroscopic matters.

In Tokyo in September, both the IUPAC Commission on Molecular Structure and Spectroscopy and the Triple Commission are holding meetings and at that time both bodies will be considering these questions. It will be very helpful to have ideas in advance from practising chemical spectroscopists to add to those of the Commission members.

With kind personal regards,

RICHARD C. LORD, Professor of Chemistry

**Extract from minutes of Montreal Meeting, Commission on Molecular Structure and Spectroscopy, August, 1961**

*(7) Units and Terminology*

At the Munich Meeting it was recommended that the symbol  $Q$  be used for the secondary unit of infrared band intensity. It has subsequently been pointed out by CRAWFORD that confusion can arise because  $Q$  is also used for the normal co-ordinate, and both these quantities are likely to occur in the same equation. CRAWFORD has suggested that  $\Gamma$  (capital gamma) should be used for the secondary intensity unit. HERZBERG and MECKE suggested the use of  $s$ . It was agreed that the views of E. B. WILSON, J. C. DECUS, D. HORNIG and D. F. EGGERS should also be sought on this problem before a final decision is reached. This can be done by correspondence so that the matter can be settled before the next meeting of the Commission.

The more widespread publication of these and other similar recommendations is desirable, but it was pointed out by the President that this must await the clearance of certain copyright problems at present under discussion by the IUPAC Editorial Board.

HERZBERG noted that the *Triple Commission* has also established a Subcommittee B on Units and Nomenclature and it was agreed that the two sub-committees should work in collaboration.

The problem of the translation of spectroscopic terms among the common scientific languages was further considered. This started as a very limited project dealing specifically with the names characterizing the various forms of deformation vibrations. A more extensive list of terms was later prepared.

A group of terms for translation would be selected from the list. The languages would initially be limited to English, French, German, Japanese and Russian, with the possibility that other languages might be added at a later

time. An effort should be made to complete the project before the Tokyo meeting.

HERZBERG was appointed *Chairman* of the *Sub-Commission on Units and Terminology*, with JONES, LECOMTE, MECKE, MIZUSHIMA and TEREIN as Members, and with power to co-opt additional members as found desirable.

### **Extract from the minutes of the Triple Commission on Spectroscopy**

*Meeting at Columbus, Ohio, 15 June 1961*

G. HERZBERG, chairman, reported on the activities of the Sub-Committee B on Symbols, Units and Nomenclature. Reference was made to several suggestions submitted by J. LECOMTE. These dealt with (a) the description of vibrational modes as *wagging*, *rocking*, etc., modes in different languages, (b) the rules for the designation of normal vibration in polyatomic molecules and (c) the infrared intensity notation. It was pointed out by H.W. THOMPSON that the Commission on Spectroscopy of IUPAC is currently concerning itself with these problems and it was agreed to refer this matter to them for the time being. The secretary of the Triple Commission has had a request from the SUN Commission of IUPAP for recommendations concerning symbols and nomenclature for use in molecular spectroscopy. Sub-Committee B recommends that a selection be extracted from the Report on Notation for the Spectra of Polyatomic Molecules by MULLIKEN (adopted by the Joint Commission for Spectroscopy at Lund (J. Chem. Phys. 23, 1, 1955)) and referred to the SUN Commission.

### **PROCÈS VERBAL DE LA RÉUNION DE LA COMMISSION MIXTE DE RADIO-ACTIVITÉ APPLIQUÉE**

*tenue à Bâle le 4 novembre 1961*

*Présents:* Dr SELIGMAN, Président, Prof. DE HEVESY (IUB),  
Dr MORF (IUPAC), Prof. VON MURALT (IUPS),  
Dr PICCIOTTO (IUGG), Dr RODERICK (UNESCO),  
M. FISHER, Secrétaire

*Absents:* Prof. CALVIN (IUBS), Dr ELLIOT (IUPAP), Prof. FEATHER  
(IUPAP), Prof. PEREY (IUPAC), Dr REICHARD (IUBS)

Le Président en ouvrant la réunion remercie la Société Hoffmann-La Roche qui met ses locaux à la disposition de la Commission. Il souhaite la bienvenue au Dr Picciotto qui participe pour la première fois aux travaux de la Commission. Il propose que la Commission adresse au Dr CALVIN ses félicitations pour la distinction méritée dont il est l'objet par l'attribution du prix Nobel.

#### *(1) Procès-verbal de la précédente réunion*

Le procès-verbal de la réunion tenue à Copenhague le 5 septembre 1960 a déjà été approuvé et le Président présente l'état d'avancement des différents points exposés dans ce procès-verbal.

Dissémination d'information: Le Secrétaire général a reçu de nouvelles réponses à la suite de l'envoi de listes de références. Il semble que ces listes n'étaient pas assez spécifiques et l'AIEA devra préparer une nouvelle liste pour circulation.

Utilisation du radium comme étalon: La suggestion émise par le Prof.



FEATHER à la dernière réunion a été communiquée à une quinzaine de laboratoires qui dans l'ensemble estiment ces propositions raisonnables.

#### Conférences et Symposia :

(a) Le Symposium sur la détection et l'emploi du tritium dans les Sciences physiques et biologiques s'est tenu à Vienne avec succès du 3 au 10 mai 1961.

(b) Le Symposium sur le datage doit se tenir dans la seconde moitié de 1962 probablement à Vienne à l'aide de fonds fournis par l'AIEA. La Commission recommande que ce Symposium s'étende à toutes les méthodes connues et traite aussi bien des datages géologiques que des datages archéologiques. Les Sociétés archéologiques seront informées de ce Symposium afin que ces techniques soient portées à la connaissance du plus grand nombre possible d'utilisateurs éventuels.

(c) La Conférence sur l'utilisation des radioisotopes dans les Sciences-biologiques se tiendra à Mexico du 21 novembre au 1er décembre 1961.

#### (2) *Réunions scientifiques*

Des conférences ou colloques sont prévus sur les sujets suivants :

(a) Effets isotopiques en chimie et en biologie : La Commission approuve la réunion d'un Symposium restreint sur ce sujet.

(b) Utilisation des radio-isotopes dans la recherche pharmacologique : L'AIEA a manifesté son intérêt pour ce colloque qui pourrait se tenir à Saclay et à l'organisation duquel elle envisage d'apporter une contribution financière. Le Directeur général de l'AIEA recevra confirmation de l'intérêt de la Commission pour l'organisation d'un tel Symposium en 1963. Le Service des Radio-éléments du CEA mènera une enquête préalable sur le nombre possible des participants, le CEN de Saclay ne pouvant en recevoir qu'une centaine au maximum.

(c) Sur la recommandation du Prof. HEVESY, la Commission envisage la convocation de conférences portant sur l'utilisation des traceurs radio-actifs pour les études hématologiques, les études de perméabilité et les études de durée de vie des cellules. Deux conférences pourraient être tenues avec le concours financier de l'IUPS :

une en 1963 sur l'utilisation des radio-éléments dans l'étude de la durée de vie des cellules particulièrement en hématologie.

une en 1964 sur l'utilisation des radio-éléments dans les études de perméabilité cellulaire.

#### (3) *Catalogue des sources d'irradiation*

L'enquête préliminaire effectuée par l'AIEA a montré que les sources actuellement existantes en Europe sont pleinement utilisées et qu'il n'est sans doute pas justifié d'y attirer de nouveaux utilisateurs.

L'AIEA devant organiser en 1963 une conférence sur l'utilisation des fortes sources, il est décidé qu'elle effectuera à cette occasion une enquête parmi les représentants des différents pays pour étudier leurs besoins en irradiation gamma à l'aide d'éléments combustibles, de sources radio-actives, ou de machines accélératrices.

#### (4) *Enquête sur le choix des quantités de radio-éléments utilisées sur l'homme.*

Cette enquête avait été envisagée sur la suggestion du Prof. CALVIN lors de la réunion tenue à Paris le 27 octobre 1959. Elle s'avère difficile à mener, les pratiques médicales étant très variables et le Président propose qu'un



comité d'experts soit réuni en 1963 par l'AIEA et l'Organisation mondiale de la Santé afin de confronter la pratique de différents pays.

#### (5) *Dévolution des étalons de radium*

Depuis la réunion de Copenhague en septembre 1960, l'Institut du Radium français a fait savoir au Président de la Commission qu'il avait remis l'étalon Hönigschmid au Bureau International des Poids et Mesures.

Cette procédure n'est pas celle qui avait été décidée par la Commission, puisque l'étalon devait être transféré à l'AIEA.

Tout en reconnaissant que l'utilisation du radium comme étalon est d'un intérêt minime, la Commission estime cependant que l'Institut du Radium n'a pas à transférer sans l'avis de la Commission un étalon dont il n'est que dépositaire pour le compte de l'ICSU.

Le Secrétaire général rassemblera les éléments qui permettront à l'UNESCO de conseiller la Commission sur le plan juridique.

#### (6) *Suggestions pour des activités nouvelles*

(a) Le Prof. HEVESY souhaite que des informations soient rassemblées sur les phénomènes de décomposition intervenant dans les composés marqués sous l'effet de leur propre rayonnement. Il sera demandé à l'AIEA d'entreprendre une enquête auprès des laboratoires fabriquant ces produits afin de rassembler les observations qu'ils ont pu effectuer.

(b) Le Dr RODERICK signale que l'UNESCO prévoit d'entreprendre un important travail sur la circulation des éléments chimiques autour du globe dans l'air et dans l'eau et souhaiterait recevoir l'aide de la Commission pour ce qui concerne l'utilisation des traceurs radio-actifs naturels ou artificiels. La Commission décide d'exprimer à l'UNESCO son intérêt pour cette étude.

(c) Dans le domaine de l'étude des retombées radio-actives, c'est l'OMS qui a été chargée de rassembler les renseignements recueillis en différents points du globe. La Commission estime nécessaire qu'une organisation internationale développe les recherches radiobiologiques qui permettront d'exploiter les résultats recueillis par l'OMS.

#### (7) *Composition de la Commission et budget pour 1963*

Il paraît souhaitable que la Commission puisse faire participer à ses travaux d'autres personnalités choisies pour leur compétence particulière dans les sujets mis à l'ordre du jour. Il est décidé que le Secrétaire général demandera à l'ICSU l'autorisation pour le Président de choisir jusqu'à deux membres supplémentaires pour participer aux travaux de la Commission.

Le budget de la Commission pour 1963, compte tenu des réunions prévues et de l'organisation de deux colloques, s'élèvera à \$ 8.000.

#### (8) *Questions diverses*

(a) Lors du Symposium de l'AIEA sur la détection et l'emploi du tritium, il a été demandé par les participants que l'étalon de tritium du National Bureau of Standards soit réévalué.

La constitution d'un étalon primaire appartient au Bureau International des Poids et Mesures, l'AIEA ne se chargeant que d'effectuer des intercomparaisons. L'AIEA demandera au Bureau International des Poids et Mesures la date à partir de laquelle des étalons secondaires de tritium seront distri-

bués et n'entreprendra elle-même des étalonnages que si le délai indiqué paraît trop long.

(b) La prochaine réunion de la Commission aurait lieu en novembre ou décembre 1962, si possible en même temps que le Symposium sur le datage.

CH. FISHER

## **REPORT OF THE REPRESENTATIVE PRO TEM. FROM IUPAC TO COSPAR MEETING**

*Washington, 30 April-9 May, 1962 addressed to the Secretary General*

Dear Dr. MORF:

I should first note for your record that although it has been decided to hold a COSPAR meeting next year, the local of that meeting was not established when I left the meeting on 6 May. The delegate from Warsaw presented an invitation but the date was not acceptable as first suggested. However, I had an opportunity to talk to Dr. W. ZONN of the Polish delegation on the morning of 5 May. He told me that a meeting early in June of 1963 would be satisfactory for the Poles and that it appears that such a meeting will be satisfactory for COSPAR itself. Doubtless you will get a more reliable statement on this matter directly from Dr. P.J. BEAULIEU.

Second, you will doubtless want to know that the International Biochemical Union proposes to hold a Symposium concerned with the existence of extra-terrestrial life, as nearly as I can gather, next Spring. Dr. CALVIN presented a rather detailed program regarding that proposal.

Three points are worthy of special note: (1) the request from UNESCO via ICSU that COSPAR should check on certain safety aspects of experiments in outer space, (2) that, for reasons which I shall indicate, IUPAC should give some careful thought to the implications of this request, and (3) that IUPAC may want to look more thoroughly into the possibility of a Symposium related to the interests of COSPAR. These points will be taken up seriatim.

(1) Regarding the request from UNESCO in reference to experiments with potentially undesirable effects: a resolution adopted by the General Assembly of the United Nations on 20 December, 1961, concerned with the problems involved, requested the World Meteorological Organization, consulting with UNESCO, and other organizations, such as ICSU, for a report to the member governments and to the Economic and Social Council with an ultimate view for further consideration by the General Assembly at its 17th session. It also asked COSPAR to review the report and submit its comments and recommendations to the Economic and Social Council and to the General Assembly. (The General Assembly also passed a similar resolution concerning communications by means of satellites and a third resolution continuing the membership of COSPAR and adding certain other members.)

This matter occupied the attention of the Executive Council very extensively during the period of my attendance at the meetings. A resolution very carefully prepared by Prof. H.S.W. MASSEY, Dr. R.W. PORTER and Dr. J. KAPLAN was very thoroughly discussed and modified to the satisfaction of all those present including Vice-President Academician A.A. BLAGONRAVOV, who was especially anxious that COSPAR not be put in a position merely of approving what others might set out to do.

(2) Analysis of the undesirable potentialities of space experiments is fundamentally the responsibility of the Executive Council of COSPAR but actually it will have to employ the assistance of a consultative group. The resolution prepared by the Executive Council states that such a consultative group is to contain not more than six scientists having among them specific knowledge in astronomy, radiation physics, atmospheric chemistry and physics, communications, meteorite penetration, and microbiology (all to be named by the President of COSPAR... who will doubtless be the *incoming* President, Prof. M. M. Roy). So far as I know, chemists have not given any specific thought to the overlap between any of their basic interests and the possible harmful effects of space experiments. It seems to me that it would be in order for IUPAC to create a committee containing chemists of imagination and distinction, representing various disciplines of chemistry, who might examine, and report on, possible interest in this subject, so that the President of IUPAC, in turn, may be in a position to make suggestions to the President of COSPAR.

(3) I found myself rather unexpectedly obligated to make a report as IUPAC representative. A copy of that report is attached. I call your attention to the last paragraph. My comments in that paragraph may be considered in connection with the contents of paragraph 2 above.

The Executive Council meetings which I attended were all very active. The four working groups presented reports which showed not only how much work they had done but also how successful they had been in coordinating the activities of the various members of the various organizations.

A particularly notable event of the meeting was the invitation from the NAS-NRC to the delegates and representatives of the various countries to visit Cape Canaveral on Saturday, 5 May, as guests of the NAS. Apparently, all those delegates and representatives who had not previously visited there, with the exception of the delegates and representatives from the USSR itself, accepted the invitation to visit Cape Canaveral and were very much impressed by the experience and by the freedom with which the activities at Canaveral were described. Such freedom of communication will doubtless become more extensive in the future and speaks well, also, for the future activities and influence of COSPAR.

MILTON BURTON, Director, Professor of Chemistry  
*Pro-tem.* representative from IUPAC to COSPAR

### **Report of IUPAC Representative to COSPAR, April 1962**

I should introduce my remarks by the statement that I am a recently appointed *pro-tem.* representative of IUPAC and, therefore, can hardly speak authoritatively regarding future plans of the organisation which I represent.

Our name implies a wide interest in both pure and applied chemistry. I presume that an interest in chemical problems related to space research, *per se*, would be considered one of our applied interests. Three international symposia of the Union are planned for this year. None of the presently programmed plenary lectures relate directly to space research. On the other hand, several of the participants have an active interest in COSPAR and it is rather probable that some papers presented at smaller group meetings in connection with the Symposia will deal with subjects specifically important to space research. A quick survey indicates that of nine other international symposia of a chemical nature planned for this calendar year none have any major content connected with space research.

Perhaps the time has come to direct the attention of chemists generally to the ideas that many of their "pure" findings (e.g., in the areas of radiation



chemistry, far UV photochemistry, kinetics, spectroscopy, luminescence, energy deposition, excitation transfer, high-pressure and ultra-low-vacuum chemistry, etc.) have some special application for space research and that the possibility of such application should be more consciously realized and stated. It is possible that a Symposium concerned with such matters is now in order. My report to our Executive Secretary will include this point.

MILTON BURTON

**COSPAR Resolution in response to ICSU Resolution 10 (1961)  
on "Space Experiments with potentially undesirable effects"**

The resolution adopted by COSPAR in response to the above mentioned resolution is as follows.

"In order to carry out the responsibility for careful, objective, quantitative studies of space experiments with potentially undesirable effects on scientific activities and observations, which COSPAR has accepted in response to ICSU resolution 10 (1961) (COSPAR Doc./62/II), the Executive Council decides to establish a Consultative Group on Potentially Harmful Effects of Space Experiments, to consist of not more than six broadly competent scientists having among them specialized knowledge of Astronomy, Radiation Physics, Atmospheric Physics and Chemistry, Communications, Meteorite Penetration and Microbiology, to be named by the President of COSPAR.

It is expected that this Consultative Group will act as a focal point in ICSU for consideration of all questions regarding potentially harmful effects of space experiments on scientific activities and observations, and that in this capacity it would: (1) examine in a preliminary way all questions relating to possibly harmful effects of proposed space experiments, including but not restricted to questions referred to it by any of the ICSU unions; (2) determine whether or not any serious possibility of harmful effects would indeed result from the proposed experiment; (3) in consultation with appropriate Unions, appoint and arrange for convening an ad hoc Working Group or Groups to study any expected effects which are considered to be potentially harmful, such Working Group or Groups to include competent scientists in the appropriate specialized disciplines; (4) receive and consider conclusions or recommendations of these ad hoc Working Groups in a timely manner; and (5) prepare final recommendations to the COSPAR Executive Council for its further action. Positive or negative recommendations or studies considered appropriate by the Council for dissemination would then be made available to all COSPAR adherents, the ICSU Bureau, the appropriate Unions of ICSU, and to appropriate bodies of the United Nations or its specialized agencies."

**IIIrd IUPAC INTERNATIONAL SYMPOSIUM ON THE  
CHEMISTRY OF NATURAL PRODUCTS 1964**

Dear Dr. MORF,

In response to your letter of 13 March, the following information about the Symposium is respectfully submitted to the Secretary General and the Editorial Advisory Board:



- (1) Title of Symposium: International Symposium on the Chemistry of Natural Products, 1964.
- (2) Commission sponsoring meeting: Japan Science Council.
- (3) Date and place: 12-18 April 1964, Kyoto.
- (4) Approximate number of participants expected: National participants: 600, Foreign participants: 250, Total 850.
- (5) Number of papers to be presented and approximate length: Fifty minute lectures: 10, Twenty minute papers: 150.
- (6) Number of special invited lecturers: 10. The selection of the special invited lecturers has not yet been decided and this information will be available around the end of July.
- (7) Financial help will be requested from the Union as soon as the Symposium is approved officially by the Japanese Government.
- (8) In the event of the Union not wishing to publish the proceedings, the organizer might make other publication arrangements if necessary.
- (9) Arrangements for the collection of manuscripts will be discussed. Prof. TSUDA will be appointed for this purpose and a deadline will be set in the event of the publication of the proceedings.

The advice of the Editorial Advisory Board with regard to publication is hereby requested.

KYOSUKE TSUDA,  
General Secretary of Organizing Committee

## CALENDAR

**1962**

### *August-September*

- 27-28 11nd International Symposium on the Chemistry of Natural Products (Prof.F.SORM, POB 159, Prague 6, Dejvice/Czechoslovakia) Prague

### *September*

- 9-14 142nd Meeting of the American Chemical Society (Mr. A.T.WINDSTEAD, National Meetings Department, American Chemical Society, 1155 Sixteenth St., Washington 6, D.C. USA) Atlantic City N.J.
- 10-13 17th Annual Instrument Automation Conference and exhibit (Director of Technical Programs, ISA, 313 Sixth Avenue, Pittsburgh 12, Pa./USA) Cleveland
- 10-15 \*Symposium on molecular Structure and Spectroscopy (General Secretary, Yonezo Morino, The University of Tokyo, Tokyo/Japan) Tokyo
- 16-22 Octavo Congreso Latinoamericano de Química/ Cinquentenario de la Asociación Química Argentina (Dr. VENANCIO DEULOFEU - Secretaría Octavo Congreso Latinoamericano de Química, Casilla Correo 2153, Buenos Aires/Argentina) Buenos Aires
- 17-19 \*International Symposium on Pharmaceutical Chemistry (Prof.A.SOLDI, Società italiana di Scienze farmaceutiche, Via Giorgio Jan 18, Milan/Italy) Florence
- 18-21 1st International Congress of Food Science and Technology (information from the Society of Chemical Industry, 14, Belgrave Square, London S.W.1./GB) London
- 24-29 13th Meeting of CITCE (International Committee of Electrochemical Thermodynamics and Kinetics) (Secretariat General: Federal Institute of Technology, Department of Industrial and Engineering Chemistry, Universitätsstrasse 6, Zurich/Switzerland) Rome
- October*
- 4-6 International Symposium on Chemical Plant Taxonomy (Dr.T.SWAIN, Low Temperature Research Station, Downing Street, Cambridge/GB) Paris
- 3-7 International Conference on Water Pollution Research (Mr.J.E.HOLMSTROM, Secretary General, Scientific Conference, Headington Hill Hall, Oxford/GB) London
- November*
- 19-23 \*Colloque sur la datation au moyen des radio-isotopes (Mr. WITOLD LISOWSKI, Division de la Documentation scientifique et technique, Agence internationale de l'Energie atomique, Kärntnerring 11, Vienne 1/Autriche) Athènes

**1963**

- March*  
14-15 British Nuclear Energy Conference - Symposium on the Advanced Gas-Cooled Reactor (The Secretary, British Nuclear Energy Society, 1-7 Great George Street, London S.W.1/GB) London
- June*  
4-8 Treizième réunion annuelle de la Société de Chimie physique - Sujet: Interactions moléculaires en phase liquide. (Prof. G. Emschwiller, Société de Chimie physique, 10, rue Vauquelin, Paris-5e) Paris
- July*  
1-5 Symposium international de Chimie macromoléculaire (Prof. MICHEL MAGAT, Faculté des Sciences de Paris, 11, rue Pierre-Curie, Paris-5e/France) Paris
- 5-9 \*XXII<sup>nd</sup> Conference of IUPAC (Dr. R. MORE, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland) London
- 10-17 \*XIX<sup>th</sup> International Congress of Pure and Applied Chemistry (Organizing Committee, XIX<sup>th</sup> International Congress of Pure and Applied Chemistry, 14 Belgrave Square, London S.W.1/GB) London
- 18-23 \*Symposium on Thermodynamics and Thermochemistry (Dr. STIG SUNNER, Thermochemistry Laboratory, Lund University, Lund/Sweden) Lund
- 18-20 \*Symposium on the Chemistry and Biochemistry of Fungi and Yeasts (Prof. T.S. WHEELER, Department of Chemistry, University College, Science Buildings, Upper Merrion Street, Dublin/EIR) Dublin
- 22-27 \*European Molecular Spectroscopy Meeting (The Hungarian Academy of Sciences, Budapest/Hungary) Budapest
- August*  
26-30 Fifth International Congress on Clinical Chemistry (Dr. MONROE E. FREEMANN, 1400 South Joyce St. A 202, Arlington, Virginia/USA) Detroit
- September*  
12-14 International Symposium on Nitro-compounds (Prof. T. Urbanski, Institute of Technology-Politechnika, Koszykowa 75, Warszawa 10, Poland) Warsaw

**1964**

- April*  
12-18 \*Symposium on Natural Products (Prof. MUNIO KOTAKE, Suita Kenkyujo, 646, Katayaka Suita, Osaka/Japan) Kyoto
- July*  
20-24 International Symposium on Organic Reaction Mechanisms (The General Secretary, The Che- Cork/Ireland

mical Society, Burlington House, London  
W.1/GB)

20-25 \*3rd International Congress on Catalysis (Dr. Amsterdam  
D.M.Brouwer, P.O. Box 3003, Amsterdam,  
Netherlands)

*August*

4-10 \*5th International Symposium on the Reactivity Munich  
of Solids (Prof. G.-M. SCHWAB, Sophienstrasse 11,  
Munich/Germany)

\*sponsored by IUPAC



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**INTERNATIONAL UNION OF PURE  
AND APPLIED CHEMISTRY**

**INFORMATION BULLETIN  
NUMBER 17**

**DECEMBER, 1962**

**SECRETARY GENERAL:**

**Dr. R. Morf, c/o F. Hoffmann-La Roche et Cie., SA, Basle 2 (Switzerland)**

**Butterworth Scientific Publications · London**



## INTRODUCTION

This last edition of the Information Bulletin in 1962, covers the second half-year, reports on the various Symposia held under the sponsorship of IUPAC, and gives the results of Bureau and Executive Committee meetings. There is also a report of the President of the Analytical Division of IUPAC which was submitted to the last Bureau meeting in Brussels. The main purpose of the Bulletin, however, is in view of the activity in 1963 when the XIXth International Congress and the XXIIInd Conference of IUPAC are held in London and the Bulletin gives information to Divisions and Commissions and to titular members on the financial contribution which is made towards travel and subsistence from the Union's Treasury. The Budget for 1963 and the remarks regarding the Budget will be a guidance for those who make their plans to attend the Conference.

The tentative programme for the XIXth International Congress and the XXIIInd Conference of IUPAC, is on pages 4 and 11.

As you will see in the Bulletin, thanks to the great effort made by various Adhering Organizations and special thanks to substantial voluntary contributions, it will be the first time in the history of IUPAC that full reimbursement for travel by rail, sea and economy class return by air (with jet service), as well as living expenses will be paid for all titular members as listed in the Comptes Rendus XXI to attend the Conference. For Divisions and Commissions, however, where there is any change of membership since the Montreal meeting such members are only entitled to reimbursement provided the Executive Committee has sanctioned each individual case.

Also for the first time in the history of the Union, it will be possible for those Adhering Organizations who have no representation whatsoever in the Bureau, Divisions or Commissions to appoint one delegate as "councillor-at-large" who will be entitled to full travel expenses by rail, sea and economy class return by air (with jet service). As you know the charter flight to Montreal in 1961 was a great success, however, since then some reluctance has been felt among members and the Secretary General does not intend to take any steps to organize such a flight for the London Conference.

The Executive Committee at its last meeting in Tokyo had a full discussion with regard to the Budget for 1963. The new Treasurer, who will be appointed in July 1963, will find a very healthy situation with regard to the finances. Sir CHARLES DODDS who has been Treasurer since 1957 has decided, with reluctance, to resign at the London Conference this decision is principally due to his heavy commitments since being elected as President of the Royal College of Physicians.

## Adhering Organizations

The new official address of the *Swedish National Committee* for Chemistry is the following: Svenska Nationalkommittén för Kemi, c/o Svenska Kemistamfundet, Wenner-Gren Center, *Stockholm VA*/Sweden.

Vietnam, through Prof. LE VAN THOI has repeated its request for membership to IUPAC in Category C, and investigations made by various persons with regard to the standing of chemistry in that country have shown very favourable indications and no reasons against admission of Vietnam. Chile has applied for readmission as well as Greece. Both these countries were very active within the Union some decades ago. Finally, it is not without a little pride that we have received a request from Australia for membership in a higher category, A1, which shows a growing interest of that country in IUPAC affairs. All these requests, will, of course, be submitted to the Bureau and Council next July.

## Statutes

As you know, Council in Montreal appointed Prof. P. E. VERKADE from the Netherlands, and at that time President of the Organic Section, to convene a committee to define a new structure of IUPAC and to work out new Statutes. Various drafts of the Statutes have been circularized among members of the Bureau and various organizations who have an interest in IUPAC, and the final draft with its translation into the French language has been made. Everybody is invited to make comments on this draft and extra copies are available from the Secretary General.

## INTRODUCTION

Ce Bulletin, dernier numéro de 1962, est consacré à l'activité de l'IUPAC durant le second semestre 1962: rapports sur les divers symposiums qui ont eu lieu sous le patronage de l'IUPAC, résultats obtenus aux réunions du Bureau et du Comité exécutif. Par ailleurs, vous trouverez le rapport du Président de la Section de Chimie analytique soumis à Bruxelles.

Le but de ce Bulletin est également de donner des renseignements sur l'activité de l'IUPAC en 1963 qui verra se dérouler à Londres le XIXe Congrès et la XXIIe Conférence de l'Union internationale de Chimie pure et appliquée. Les Divisions, Commissions et les Membres titulaires trouveront dans ces pages toutes informations utiles concernant le remboursement de leurs frais de voyage et de séjour par la Trésorerie de l'IUPAC. Le budget pour 1963 et les remarques y relatives faciliteront à chacun l'établissement de son plan de voyage.

Le programme provisoire du XIXe Congrès et de la XXIIe Conférence de l'IUPAC se trouve aux pages 8 et 12.

Grâce à la générosité de divers Organismes adhérents et à l'apport de substantielles contributions volontaires, l'IUPAC est à même, pour la première fois dans son histoire, de dédommager intégralement des frais de voyage et de séjour (aller et retour par train, bateau, avion [jet] classe économique), chacun des Membres titulaires figurant dans les Comptes Rendus XXI. Exceptionnellement, au cas où une Section aurait élu des Membres titulaires après la Conférence de Montréal, et à condition que le Comité exécutif ait approuvé par écrit ces élections, d'autres membres que ceux indiqués dans les Comptes Rendus peuvent entrer en considération pour le remboursement des frais de voyage.

Pour la première fois également dans l'histoire de l'IUPAC, il sera possible aux Organismes adhérents qui ne sont représentés ni au Bureau, ni dans les Divisions ou Commissions d'envoyer un délégué (councillor-at-large) aux frais de l'IUPAC (voyage aller et retour par train, bateau, avion [jet] classe économique).

Comme vous le savez, le «Charter Flight» organisé à l'occasion de la Conférence de Montréal a remporté un grand succès. Toutefois, l'enthousiasme des membres a quelque peu diminué depuis et le Secrétaire général n'envisage pas d'affréter un avion spécial pour Londres.

Lors de sa dernière réunion, le Comité exécutif a examiné très attentivement le budget pour 1963. Le nouveau trésorier, qui sera élu en juillet 1963, trouvera une situation très saine des finances. Sir CHARLES DODDS, qui a rempli les charges de Trésorier depuis 1957, nous a fait part avec regret de son intention de se démettre de ses fonctions à la Conférence de Londres. Sir CHARLES DODDS a pris cette décision en raison des lourdes charges que sa nouvelle fonction de Président du Royal College of Physicians lui demande d'assumer.



## Organismes adhérents

La nouvelle adresse officielle du *Comité national suédois* de Chimie est la suivante: Svenska Nationalkommittén för Kemi, c/o Svenska Kemistamfundet, Wenner-Gren Center, *Stockholm VA*/Suède.

Le Vietnam, par l'intermédiaire du Prof. LE VAN THOI, a renouvelé sa demande d'admission à l'IUPAC en tant que membre de la catégorie C. Des enquêtes faites par diverses personnes ont démontré que la chimie jouait un rôle très important dans ce pays et que rien ne s'opposait à son admission.

Le Chili ainsi que la Grèce ont demandé leur réadmission. Ces deux pays avaient pris une part très active dans les affaires de l'IUPAC il y a quelques dizaines d'années.

Finalement, c'est non sans fierté que nous avons appris que l'Australie désirait passer à la catégorie A1, montrant par là son intérêt croissant pour l'activité de l'IUPAC.

Il va sans dire que chacune de ces demandes sera soumise au Bureau et au Conseil de l'IUPAC en juillet 1963.

## Statuts

Comme vous le savez, le Prof. P. E. VERKADE, des Pays-Bas, alors Président de la Section de Chimie organique, avait été chargé par le Conseil à Montréal de former un comité ad hoc ayant pour tâche de donner une nouvelle structure à l'IUPAC et d'établir de nouveaux statuts. Plusieurs projets ont été soumis aux membres du Bureau et aux diverses organisations intéressées et un dernier projet – traduit en français – a été mis au point.

Chacun est appelé à faire ses commentaires quant à ce projet dont il est possible d'obtenir un exemplaire auprès du Secrétaire général.

# **XIXth INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY**

*10-17 Juli 1963*

Copies can be had on request from: The Honorary Secretary, XIXth IUPAC Congress, 14 Belgrave Square, London, S.W.1.

Patron:

H.R.H. The Duke of Edinburgh, K.G., F.R.S.

President:

The Lord TODD, F.R.S.

Executive Committee:

Prof. E. R. H. JONES, F.R.S. *Chairman*

Lt.-Col. FRANCIS J. GRIFFIN *Honorary Secretary*

Prof. E. D. HUGHES, F.R.S.

J. R. RUCK KEENE, M.B.E.

Dr. D. C. MARTIN, C.B.E.

Dr. J. S. ANDERSON, F.R.S. *Chairman, Scientific Committee*

Dr. M. A. MATTHEWS *Chairman, Finance Committee*

Dr. E. L. STREATFIELD *Chairman, Tours and Visits Committee*

Dr. H. W. THOMPSON, C.B.E., F.R.S.

Lady TODD *Chairman, Ladies Committee*

## **INTRODUCTION**

The Scientific Meetings will be held in Bloomsbury in West Central London. The Congress headquarters will be located in University College. The Opening Ceremony will take place in the Royal Albert Hall.

The fee is £7-0-0 (\$20.00) for a member and £2-0-0 (\$5.00) for a lady accompanying a member. A reduced fee of £4-0-0 (\$11.00) has been fixed for full-time students.

The Congress Lectures will be given at morning sessions of the Congress and contributed papers and symposia, in general, at afternoon sessions.

### *Accommodation*

Messrs. Thomas Cook & Sons Ltd., have been appointed official agents to the Congress and application for hotel accommodation should be made without delay to the local branch in each country.

*University Hostels.* A certain number of rooms in University Hostels has been reserved and these will be available during the Congress. Full details may be had on application to the Honorary Secretary of the Congress.

Hostel accommodation will only be available for the whole period of the Congress and it is expected that the cost per person will be in the region of £15.

### *Works visits and tours*

A Committee is arranging a comprehensive programme of visits to laboratories and works of chemical interest during the Congress of which details will be given in the 3rd Circular.

The Committee is also investigating the possibility of organizing Post Congress tours to the North East Coast and Tyneside, Merseyside, the South West of England and South Wales.

### *Ladies Programme*

The Ladies Committee is arranging a special programme for ladies attending the Congress. It is anticipated that this will include a fashion parade and visits to places of interest including Brighton, Greenwich, Kew Gardens, the Royal Mews and the Houses of Parliament.

### *Social events*

Arrangements have been made for the Congress Reception to be held in the Geological Museum on 10 July and for the Congress Banquet, to be held at Grosvenor House, on Friday, 12 July. It is anticipated that several Receptions will be held which members may be invited to attend and there will be a dance at the conclusion of the Congress, on Tuesday, 16 July, at the Hurlingham Club.

On Saturday, 13 July, visits are being arranged to Oxford and Cambridge.

## **EXHIBITION OF LABORATORY APPARATUS AND INSTRUMENTS**

During the Congress a special exhibition of British Laboratory Apparatus and Instruments will be held at University College in Gower Street, adjacent to the main activities of the Congress.

An illustrated catalogue of the exhibits will be presented to each member of the Congress and admission to the Exhibition, which will be open during the whole of the Congress, will be free.

## **XIXth INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY**

### **Scientific Programme**

The scientific programme will consist of some 20 invited Congress lectures and a wide range of contributed papers. The papers presented in the division of Organic Chemistry will form the main theme of the Congress; but certain aspects of Inorganic Chemistry, Analytical Chemistry, and Applied Chemistry will also be discussed.

Each division of the Congress will comprise a number of sections and, in general, a proportion of these will meet concurrently. The specific topics to be discussed are given below.

The abstracts of all contributed papers will be submitted to referees and only those having a direct bearing on the Congress topics can be accepted. It is, moreover, intended to limit the total number of papers presented at the meeting as indicated below.

## Scope of the Congress

### A. Organic Chemistry (250–300 papers)

1. Reaction Mechanisms
2. Physical Methods: to emphasize fundamental developments in technique and substantial applications to structural problems
3. Stereochemistry and Conformational Analysis
4. Modern Aspects of Organometallic and Related Compounds (Joint Symposium—see below)
5. Developments in Organic Synthesis
6. Biogenesis
7. Biologically Important Polymers
8. Microbiological Products and Antibiotics
9. Steroids and Terpenoids

### B. Inorganic Chemistry (50–100 papers)

1. Applications of the Newer Physical Methods (other than X-ray Crystallography) to Structural Inorganic Chemistry: to include electron spin resonance, nuclear magnetic resonance, other forms of microwave spectroscopy, and polarography
2. Inorganic Chemistry of the Solid State (Joint Symposium—see below)
3. Inorganic Chemistry of the Molten State (especially the chemical reactions or structure of solutes in molten salts, molten metals or molten non-metals. Physical properties of pure melts will not be relevant unless they have direct influence on the use of these melts as reaction media)
4. Modern Aspects of Organometallic and Related Compounds (Joint Symposium—see below)

### C. Analytical Chemistry (50–100 papers)

1. Trace Analysis
2. Separation Methods
3. Electroanalysis
4. Teaching of Analytical Chemistry

### D. Applied Chemistry (50–100 papers)

1. Adhesion, particularly of Surface Coating
2. Applied Chemistry of the Solid State (Joint Symposium—see below)
3. Food Packaging Materials; Toxicological and Analytical Problems
4. Industrial Carbon and Graphite
5. Utilization and Treatment of Wastes by Biological Methods

## Joint Symposia

Meetings in Section B2 and D2 will take the form of a joint symposium on the Pure and Applied Chemistry of Inorganic Solids. It is intended that this should deal particularly with the oxides and sulphides of the elements, in relation to such matters as non-stoichiometry and high temperature equilibria; reaction processes in the solid state; intercalation compounds; reaction processes on surfaces; topochemical processes, etc., and with the role of these in the chemistry of corrosion, metal winning, semiconductor chemistry, etc.

Joint meetings will also be held in Sections A4 and B4, and will deal particularly with the newer developments in organometallic chemistry.



## Congress Lectures

The following have provisionally agreed to deliver Congress lectures:

### A. Organic Chemistry

Prof. D. J. CRAM, Los Angeles, California, USA  
Prof. A. ESCHENMOSER, Zurich, Switzerland  
Prof. T. R. GOVINDACHARI, Madras, India  
Prof. W. S. JOHNSON, Stanford, California, USA  
Prof. A. KJAER, Copenhagen, Denmark  
Prof. E. C. KOOYMAN, Leiden, Netherlands  
Prof. E. LEDERER, Gif-sur-Yvette, France  
Prof. O. A. REUTOV, Moscow, USSR  
Dr. J. RUDINGER, Prague, Czechoslovakia  
Dr. F. SONDHEIMER, Mexico City, Mexico  
Prof. S. UYEO, Kyoto, Japan  
Prof. K. WIESNER, Fredericton, New Brunswick, Canada  
Prof. G. WITTIG, Heidelberg, Germany

### B. Inorganic Chemistry

Prof. H. BLOOM, Hobart, Tasmania  
Prof. H. S. GUTOWSKY, Urbana, Illinois, USA

### C. Analytical Chemistry

Prof. I. P. ALIMARIN, Moscow, USSR  
Prof. P. J. ELVING, Ann Arbor, Michigan, USA  
Prof. A. RINGBOM, Abo, Finland

### D. Applied Chemistry

Dr. R. R. HEIKES, Pittsburg, Pennsylvania, USA  
Mr. H. SANDVOLD, Oslo, Norway

The Congress lectures will be published in *Pure and Applied Chemistry* and reprinted for sale separately. It is expected that members of the Congress will have an opportunity to obtain the reprint at a favourable price.

## Contributed Papers

### *Date for submission*

Requests to contribute a paper to the Congress must be submitted on the Form A, not later than 21 January 1963. The application must include a 250-word abstract in the English language for publication in the Handbook of Abstracts.

The Congress Committee will be obliged to exclude from the meeting those papers of which abstracts are not received in London by the date indicated.

### *Congress languages*

It is recommended that papers be read in English, French, German or Russian.

### *Abstracts*

Abstracts are intended to serve three purposes: (a) to allow the referees to determine whether the work described can be included in the Congress,

(b) to aid in placing the contribution at the most suitable part of the programme, and (c) to tell participants whether the paper will interest them.

Abstracts should, therefore, indicate briefly the purpose of the research, some indication of how it was carried out, and a statement of the results obtained, in that order. They should be written in clear, concise and simple language, since the reader will not be as familiar with the details of the work as the author. Where information can be presented more concisely by the use of tables, figures, or formulae, these may be employed but they should be kept to a minimum. Whenever possible, symbols used should be those currently accepted internationally. Where systematic names have to be employed the nomenclature should also, if possible, be in accordance with IUPAC rules.

### *Slides*

In order to ensure a high standard of projection at all sessions, at some of which closed-circuit television will be used, arrangements will be made for the projection of slides only in the size 5 cm  $\times$  5 cm (2 in.  $\times$  2 in.), enclosing standard 35 mm film. Notes to assist authors in the preparation of slides will be sent to all who submit papers for the Congress.

## **XIXe CONGRÈS INTERNATIONAL DE CHIMIE PURE ET APPLIQUÉE**

### **Programme scientifique**

Le programme scientifique du Congrès consistera à peu près en 20 conférences plénières et en la présentation de divers travaux scientifiques. Les travaux présentés dans la division de Chimie organique formeront la plus importante partie du Congrès, bien que certains aspects de Chimie inorganique, Chimie analytique et de Chimie appliquée seront discutés.

Chaque division du Congrès comprendra un nombre de groupes, et en général, plusieurs seront en session simultanément. Les spécialités traitées sont indiquées ci-dessous.

Les résumés des travaux doivent être remis au Comité organisateur et seulement ceux qui ont un intérêt direct aux spécialités du Congrès seront acceptés. En plus, le nombre total des rapports présentés sera limité suivant les chiffres donnés ci-dessous.

### **Sessions du Congrès**

#### **A. Chimie organique (250–300 communications)**

1. Mécanismes de réactions
2. Méthodes physiques: pour mettre en évidence les développements fondamentaux dans la technique et les applications directes sur des problèmes structuraux
3. Stéréochimie et analyse conformationnelle
4. Aspects modernes des composés organométalliques et composés analogues (Symposium indépendant – voir plus loin)
5. Développements en synthèses organiques
6. Biogenèse
7. Polymères avec importance biologique
8. Produits microbiologiques et les Antibiotiques
9. Stéroïdes et terpénoïdes

### **Chimie inorganique (50-100 communications)**

1. Applications des méthodes physiques récentes (autres que la Cristallographie par diffraction des rayons X) sur la chimie inorganique structurale: résonance nucléaire magnétique, résonance de spin électronique, autres formes de spectroscopie par micro-ondes, polarographie
2. Chimie inorganique à l'état fondu (spécialement les réactions ou la structure des sels fondus, métaux fondus ou matériaux non-métalliques fondus. Propriétés physiques de produits purs à l'état fondu ne seront pas retenus s'ils n'ont pas d'intérêt direct pour l'application de ceux-ci comme médium de réaction)
3. Chimie inorganique à l'état solide (Symposium indépendant - voir plus loin)
4. Aspects modernes des Composés organométalliques et produits analogues (Symposium indépendant - voir plus loin)

### **C. Chimie analytique (50-100 communications)**

1. Analyse de traces
2. Méthodes de séparation
3. Electro-analyse
4. Instruction de Chimie analytique

### **D. Chimie appliquée (50-100 communications)**

1. Adhésion, spécialement des revêtements de surface
2. Chimie appliquée de l'état solide (Symposium indépendant - voir plus loin)
3. Matériaux pour emballages de nourriture; problèmes toxicologiques et analytiques
4. Carbone et graphite industriel
5. Utilisation et traitement de déchets par méthodes biologiques

### **Symposia indépendants**

Les réunions dans les sessions B2 et D2 prendront la forme d'un symposium indépendant sur la chimie pure et appliquée des solides inorganiques. On propose de traiter surtout les oxides et sulphides en relation avec la non-stoichiométrie ou les équilibres à haute température; réactions à l'état solide; produits pour braser; réactions en surface; chimie topique, etc. et leur rôle dans la corrosion, la production de métaux, la chimie des semi-conducteurs, etc.

Un symposium indépendant aura aussi lieu dans les sessions A4 et B4, qui traitera surtout sur les aspects modernes de la chimie organo-métallique.

### **Conférences plénières**

Jusqu'à maintenant les chercheurs suivants ont accepté de prononcer les conférences plénières.

#### **A. Chimie organique**

Prof. D. J. CRAM, Los Angeles, California, USA

Prof. A. ESCHENMOSER, Zurich, Suisse

Prof. T. R. GOVINDACHARI, Madras, Inde  
Prof. W. S. JOHNSON, Stanford, California, USA  
Prof. A. KJAER, Copenhagen, Danmark  
Prof. E. C. KOOYMAN, Leiden, Pays-Bas  
Prof. E. LEDERER, Gif-sur-Yvette, France  
Prof. O. A. REUTOV, Moscou, USSR  
Prof. S. UYEA, Kyoto, Japon  
Dr J. RUDINGER, Prague, Tchécoslovaquie  
Dr F. SONDHEIMER, Mexico City, Mexique  
Prof. K. WIESNER, Fredericton, New Brunswick, Canada  
Prof. G. WITTIG, Heidelberg, Allemagne

#### **B. Chimie inorganique**

Prof. H. BLOOM, Hobart, Tasmanie  
Prof. H. S. GUTOWSKY, Urbana, Illinois, USA

#### **C. Chimie analytique**

Prof. I. P. ALIMARIN, Moscou, USSR  
Prof. P. J. ELVING, Ann Arbor, Michigan, USA  
Prof. A. Ringbom, Abo, Finlande

#### **D. Chimie appliquée**

Prof. R. R. HEIKES, Pittsburg, Pennsylvania, USA  
M. H. SANDVOLD, Oslo, Norvège

Les conférences plénières seront publiées dans *Pure and Applied Chemistry* et seront réimprimées séparément pour la vente. Il est envisagé que les participants du Congrès auront la facilité d'obtenir les réimpressions à un prix favorable.

### **Rapports à présenter**

#### *Date limite pour présentation des titres*

Les demandes de présentation d'un rapport au Congrès doivent être remises au plus tard le 21 janvier 1963 sur le formulaire A, *ici joint*. Un résumé en anglais de 250 mots doit être ajouté pour être publié dans le «Handbook of Abstracts».

Le Comité est obligé de refuser les rapports desquels on n'a pas reçu à Londres le résumé, à la date indiquée.

#### *Langues officielles du Congrès*

On recommande de présenter les communications en anglais, français, allemand ou en russe.

#### *Résumés*

Les résumés ont trois buts: (a) ils doivent permettre au Comité organisateur à déterminer si la communication peut être admise au Congrès, (b) ils doivent aider à choisir la place du rapport dans les différentes sessions, (c) ils doivent permettre aux participants du Congrès de voir si la communication les intéresserait.



Pour cela le résumé doit indiquer en bref le but de la recherche, de quelle façon la recherche a été exécutée, un aperçu des résultats obtenus, et bien dans cet ordre. Le résumé doit être présenté dans un langage clair, simple et concis, parce que le lecteur ne sera pas aussi familier avec les détails que l'auteur. Tables, figures ou formules peuvent être employées seulement si elles aident à présenter le résumé d'une manière plus concise. Si possible des symboles internationaux acceptés doivent être employés. Les noms systématiques doivent être en concordance avec les règles de l'IUPAC.

### *Diapositives*

Pour assurer une haute qualité de projection dans toutes les sessions – dans certaines on emploiera un circuit de TV fermé – des arrangements seront pris pour projeter seulement des diapositives de 5 cm × 5 cm (2 in. × 2 in.) ou bien le film standard de 35 mm. Une note sur la façon de préparer des diapositives sera envoyée aux auteurs qui présenteront une communication au Congrès.

## **XXIInd CONFERENCE OF THE INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY**

*3–10 July 1963*

The following programme is incomplete and of a preliminary nature. The complete programme will be published later.

The Conference meetings will take place in University College, London.

The IUPAC Executive Committee will hold meetings on Wednesday, 3 July, Thursday, 4 July and Wednesday, 10 July.

The IUPAC Bureau will hold meetings on Friday, 5 July, Monday, 8 July and Wednesday, 10 July.

The IUPAC Council will hold meetings on Friday, 5 July, Saturday, 6 July and Tuesday, 9 July. There will be an open Meeting on 5 July.

The Section Committees and Commissions will meet on Saturday, 6 July, Monday, 8 July and Tuesday, 9 July.

The Section Presidents will meet on Thursday, 4 July.

The IUPAC Editorial Board will meet and there will be an *ad hoc* meeting of Secretaries of National Committees with the Secretary General of IUPAC.

All six Sectional Committees and the following Divisions and Commissions are planning to hold meetings during the XXIInd Conference:

### **I. Physical Chemistry Section**

#### *Section Committee*

- I. 1 Commission on Physico-Chemical Symbols and Terminology
- I. 2 Commission on Thermodynamics and Thermochemistry
- I. 3 Commission on Electrochemistry
  - I. 3. 1 Subcommission 1: Symbols and Terminology of Electrochemistry
  - I. 3. 2 Subcommission 2: Thermodynamics of Electrochemistry
  - I. 3. 3 Subcommission 3: Electrochemical Kinetics
- I. 4 Commission on Macromolecules
- I. 5 Commission on Physico-Chemical Data and Standards
- I. 6 Commission on Molecular Structure and Spectroscopy
- I. 7 Commission on Colloid and Surface Chemistry

## **II. Inorganic Chemistry Section**

### *Section Committee*

- II. 1 Commission on Atomic Weights
- II. 2 Commission on the Nomenclature of Inorganic Chemistry
- II. 3 Commission on High Temperatures and Refractories
- II. 3. 1 Subcommission 1: Gas
- II. 3. 2 Subcommission 2: Condensed States
- II. 4 Commission on Geochemistry

## **III. Organic Chemistry Section**

### *Section Committee*

- III. 1 Commission on the Nomenclature of Organic Chemistry

## **IV. Biological Chemistry Section**

### *Section Committee*

- IV. 1 Commission on the Nomenclature of Biological Chemistry
- IV. 2 Protein Commission

## **V. Analytical Chemistry Section**

### *Section Committee*

- V. 1 Commission on Analytical Reactions
- V. 2 Commission on Microchemical Techniques
- V. 3 Commission on Nomenclature of Analytical Chemistry
- V. 4 Commission on Spectrochemical and other Optical Procedures for Analysis
- V. 5 Commission on Electrochemical Data
- V. 6 Commission on Equilibrium Data

## **VI. Applied Chemistry Section**

### *Section Committee*

- VI. 1 Food Division
- VI. 2 Fermentation Industries Division
- VI. 3 Oils and Fats Division
- VI. 4 Water, Sewage and Industrial Wastes Division
- VI. 5 Toxicology and Industrial Hygiene Division
- VI. 6 Pesticides Division
- VI. 7 Plastics and High Polymers Division
- VI. 8 Organic Coatings Division
- VI. 9 Pulp, Paper and Board Division

## **XXII<sup>e</sup> CONFÉRENCE DE L'UNION INTERNATIONALE DE CHIMIE PURE ET APPLIQUÉE**

Le présent programme est encore incomplet et d'ordre préliminaire. Le programme définitif sera publié plus tard.

Les réunions du Comité exécutif de l'IUPAC auront lieu les mercredi 3 juillet, jeudi 4 juillet et mercredi 10 juillet 1963.

Les réunions du Bureau de l'IUPAC auront lieu les vendredi 5 juillet, lundi 8 juillet et mercredi 10 juillet 1963.

Les réunions du Conseil de l'IUPAC auront lieu les vendredi 5 juillet, samedi 6 juillet et mardi 9 juillet 1963. Le public sera admis le 5 juillet.

Les réunions des Comités de Section et de Commission auront lieu les samedi 6 juillet, lundi 8 juillet et mardi 9 juillet 1963.

La réunion des Présidents de Section aura lieu le jeudi 4 juillet 1963.

Une réunion du Comité de Rédaction de l'IUPAC aura également lieu et les Secrétaires des Comités nationaux se réuniront avec le Secrétaire général de l'IUPAC en une séance ad hoc.

Les six Comités de Section ainsi que les Commissions et Divisions suivantes ont prévu de se réunir lors de la XXII<sup>e</sup> Conférence :

### **I. Section de Chimie physique**

#### *Comité de Section*

- I. 1 Commission des Symboles et de Terminologie physicochimiques
- I. 2 Commission de Thermodynamique et de Thermochimie
- I. 3 Commission d'Electrochimie
- I. 3. 1 Sous-commission 1: Symboles et Terminologie électrochimiques
- I. 3. 2 Sous-commission 2: Thermodynamique électrochimique
- I. 3. 3 Sous-commission 3: Cinétique électrochimique
- I. 4 Commission de Chimie macromoléculaire
- I. 5 Commission des Données et Etalons physico-chimiques
- I. 6 Commission de Structure moléculaire et de Spectroscopie
- I. 7 Commission de Chimie des Colloïdes et des Surfaces

### **II. Section de Chimie inorganique**

#### *Comité de Section*

- II. 1 Commission des Poids atomiques
- II. 2 Commission de Nomenclature de Chimie inorganique
- II. 3 Commission des Hautes Températures et des Réfractaires
- II. 3. 1 Sous-commission 1: Etats condensés
- II. 3. 2 Sous-commission 2: Gaz
- II. 4 Commission de Géochimie

### **III. Section de Chimie organique**

#### *Comité de Section*

- III. 1 Commission de Nomenclature de Chimie organique

#### **IV. Section de Chimie biologique**

##### *Comité de Section*

- IV. 1 Commission de Nomenclature de Chimie biologique
- IV. 2 Commission des Protéines

#### **V. Section de Chimie analytique**

##### *Comité de Section*

- V. 1 Commission des Réactions analytiques
- V. 2 Commission des Techniques microchimiques
- V. 3 Commission de Nomenclature de Chimie analytique
- V. 4 Commission de Spectranalyse et autres Méthodes optiques d'Analyse
- V. 5 Commission des Données électrochimiques
- V. 6 Commission des Données d'Equilibre

#### **VI. Section de Chimie appliquée**

##### *Comité de Section*

- VI. 1 Division de Bromatologie
- VI. 2 Division de Fermentation
- VI. 3 Division des Matières grasses
- VI. 4 Division des Eaux d'Egout et des Eaux industrielles résiduaires
- VI. 5 Division de Toxicologie et d'Hygiène industrielle
- VI. 6 Division des Pesticides
- VI. 7 Division des Plastiques et Produits de haute Polymérisation
- VI. 8 Division des Revêtements de Surface
- VI. 9 Division de la Pâte, du Papier et du Carton



**EIGHTH LATINAMERICAN CONGRESS OF CHEMISTRY  
BUENOS AIRES, ARGENTINA**

*16-22 September 1962*

12 October 1962

Dear Dr. Morf,

I wish to express to you the appreciation of the Argentine Committee who organized the Eighth Latinamerican Congress of Chemistry, for your co-operation and efforts in order that IUPAC could be represented.

We were very happy to have amongst us Professor KLEMM and he will explain to you and the members of the Bureau of IUPAC his experiences in Argentina.

I enclose a short report on the Congress which you may like to publish in the Bulletin of IUPAC.

With best regards,

Yours sincerely,

VENANCIO DEULOFEU

The Eighth Latinamerican Congress of Chemistry took place in Buenos Aires during the week from 16 to 23 September 1962. More than 600 chemists registered for the meeting representing 20 nations. At the same time the 50th anniversary of the Asociación Química Argentina, founded in 1902, and the oldest chemical association in Latinamerica, was celebrated.

At the inaugural ceremony of the Congress, the President of the Congress, Dr. VENANCIO DEULOFEU, welcomed the delegates and made a short review of the development of chemistry in the Latinamerican countries. Dr. EMILIO ETCHEGARAY, President of the Asociación Química Argentina, then addressed the meeting, mentioning the most important steps in the history of the Society, and after this Prof. W. KLEMM spoke as a representative of the IUPAC and Sir ROBERT ROBINSON as a representative of the oldest chemical society. Messages of congratulation from different countries were received at the close of the meeting.

General lectures and papers were presented in the following meetings which were held at the Engineering Faculty of Buenos Aires and which were well attended. The general lecturers were Prof. F. FEIGL (Rio de Janeiro) who spoke on the progress of spot tests for the investigation of organic substances; Sir ROBERT ROBINSON (London) on the relation between scientific research and industrial development in the field of organic chemistry; Dr. CHATT (London) on the hydride complexes of the transition metals; Prof. R. ADAMS (Urbana, USA) on fifty years of chemical development of the United States; Prof. M. STACEY (Birmingham) on the determination of the sequence of nucleotides in nucleic acids; Prof. W. KLEMM (Münster) on research on hemimetals and their compounds with alkaline metals; Prof. F. BURRIEL MARTI (Madrid) on some aspects of modern analytical chemistry; Prof. J. ROMO (Mexico) on recent progresses in Mexico on the study of natural products and Dr. K. FOLKERS (Rahway, USA) on chemical and biochemical studies on coenzyme Q.

One day was devoted to visits to Laboratories and industrial plants, which were well attended, and the usual social events were also programmed. The Congress dinner closed the meeting, and Dr. KARL FOLKERS as president of the ACS delivered a short speech greeting the Argentine Chemical Association in the name of the oldest chemical society in the Continent, the American Chemical Society. The next Congress will take place in Puerto Rico.

## PRELIMINARY REPORT ON THE SYMPOSIUM ON MOLECULAR STRUCTURE AND SPECTROSCOPY

*Tokyo, 10-15 September 1962*

(A more comprehensive report will be made by Dr. H. W. THOMPSON a specialist in this field, who also attended the Symposium.)

The International Symposium on Molecular Structure and Spectroscopy organized by the Science Council of Japan, was the first Symposium to be held in Japan under the co-sponsorship of IUPAC. At the same time meetings of the Executive Committee, the Commission on Molecular Structure and Spectroscopy and the Triple Commission on Spectroscopy under the chairmanship of Prof. G. HERZBERG from Ottawa, representing Astronomy, Physics and Chemistry, were also held.

The Opening Ceremony, held on 10 September at the Nihon Toshi Center Hall, was presided over by the General Secretary of the Organizing Committee, Prof. YONEZO MORINO, the opening address was given by Prof. SAN-ICHIRO MIZUSHIMA, Chairman of the Organizing Committee and member of the IUPAC Bureau from 1955-61, and among others an address of greeting was made by Prof. W. ALBERT NOYES, Jr., President of IUPAC.

At the following plenary session, under the chairmanship of Prof. R. C. LORD, President of the IUPAC Commission on Molecular Structure and Spectroscopy, four general lectures were held:

1. "Researches on Internal Rotation in Japan" Prof. SAN-ICHIRO MIZUSHIMA
2. "Molecular Vibrations and Physico-chemical Problems" Dr. H. W. THOMPSON
3. "Recent Work on Spectra of Free Radicals" Prof. G. HERZBERG
4. "Recent Results of Chemical Interest from Microwave Spectroscopy" Prof. E. BRIGHT WILSON, Jr.

From Tuesday, 11 September, to Friday, 14 September, Special and also Invited Papers were given, grouped in the following ten divisions:

- 1 Theoretical
- 2 Rotation and rotation-vibration spectra
- 3 Assignment of vibration spectra
- 4 Electronic spectra
- 5 Unstable molecules
- 6 Internal rotation
- 7 Complex organic compounds
- 8 Inorganic compounds
- 9 Molecular interactions
- 10 Techniques and applications

in which some 250 Papers were presented.

The General Conferences and the Invited Papers will be printed in the IUPAC Journal "Pure and Applied Chemistry", and will certainly be of very great interest to the specialists as well as many other chemists and physicists.

All those chemists like the Secretary General, who have had many opportunities of assisting at international symposia, and who were in Japan for the first time, the exceptionally high standard set in Tokyo was very impressive and as such will be extremely difficult to improve upon in the future. Not only was this evident in the facilities provided for those attending, but

it was particularly noticeable in the precision attained on the scientific side.

The great success of this Symposium gives a very promising pattern for the next meeting to be held in Japan in 1964 on the Chemistry of Natural Products.

## **THE INTERNATIONAL SYMPOSIUM ON PHARMACEUTICAL CHEMISTRY**

*Florence, 17-19 September 1962*

The International Symposium on Pharmaceutical Chemistry was organized by the Società italiana di Scienze farmaceutiche under the sponsorship of IUPAC. Some 400 members coming from 24 countries attended this Symposium which was limited to invited papers only. All these invited papers will be published in the IUPAC Journal "Pure and Applied Chemistry". (The titles of these papers have already been printed in Information Bulletin 16, page 15.)

## **2nd INTERNATIONAL SYMPOSIUM ON THE CHEMISTRY OF NATURAL PRODUCTS**

*Prague, 27 August-2 September, 1962*

The 2nd International Symposium on the Chemistry of Natural Products took place in Prague from 27 August to 2 September, 1962. It was organized by the Czechoslovak Academy of Science and the Czechoslovak Chemical Society under the sponsorship of the Section of Organic Chemistry in the International Union of Pure and Applied Chemistry. The Organization was directed by a committee of 15 members. The financial costs were for the most part covered by the organizers from a subsidy granted by the Czechoslovak Socialist Republic. To cover part of expenses of the invited foreign speakers and a few guests from the less developed countries a donation amounting \$4,000.—granted by the IUPAC was used.

The 2nd Symposium—on the contrary to the 1st Symposium on the Chemistry of Natural Products which had taken place in Australia two years before and covered the field of natural products in a widest sense of the term—dealt with a rather narrow field of the chemistry of alkaloids, and isoprenoids (steroids and terpenes) with special view to their stereochemistry and biogenesis. It is just in these fields that a considerable progress has been achieved in the last years. The working character of the meeting, on one hand, and the purposely limited number of visitors to positively interested participants, on the other, were due to a strict concentration of topics.

Within the framework of the symposium 5 specialized colloquia with introductory lectures of outstanding specialists in the field were organized: Colloquium on Total Syntheses of Steroids—with an introductory lecture by I.V. TORGOV;  
Colloquium on the Stereochemistry of Medium Ring Compounds—with an introductory lecture by V. PRELOG;  
Colloquium on Modern Physical Methods in the Chemistry of Natural Products—with an introductory lecture by C. DJERASSI;



Colloquium on Diterpene Alkaloids—with an introductory lecture by L. MARION;

Colloquium on Photochemical Transformations of Natural Products—with an introductory lecture by D.H.R. BARTON.

The subjects were determined by means of an international inquiry among more than 30 outstanding scientists. The aim of the colloquia was to summarize the by now known results, to outline the perspectives and to make the audience acquainted with applications of methods.

Lectures—except for the one-hour's main lectures—were delivered in two parallel sessions devoted to one of the three groups mentioned above. In the section of terpenes the main lecture was delivered by Prof. L. RŮŽIČKA (Perspectives in the Chemistry of Terpenes and their Biogenesis), and another by Prof. H. G. H. ERDTMAN (Natural Product Chemistry and Plant Taxonomy). In the section of alkaloids the main lecture was given by Sir ROBERT ROBINSON (Perspectives in the Chemistry of Alkaloids and their Biogenesis) and another by Prof. M.-M. JANOT (Relations between Alkaloids and Terpenes—in French). In the two sections 41 contributions on alkaloids, 35 on terpenes and 25 on steroids (in English or Russian) in total were read. Lectures delivered in either of these two languages were simultaneously translated into the other. Only a few contributions were presented in German or French (without simultaneous translation).

Moreover, two special lectures out of the framework of the symposium topic were delivered: one by R. B. WOODWARD on Total Syntheses in Tetracycline Series, and another by A. R. TODD on Aphid Colouring Matters. These papers were intended to make the audience acquainted with the working style of the most distinguished chemists of the present time.

In general, the lectures and especially the colloquia enjoyed high attendance and interest. Abstracts of papers—provided that authors had delivered them in time—were printed and distributed to participants before opening. According to an agreement with the representatives of the IUPAC the main lectures will be published in full in the journal "Pure and Applied Chemistry" and edited as an independent book by Butterworths, London.

With regard to the high number of accompanying persons a rich social programme was organized; this included visits to the cultural monuments of Prague, trips to Prague surroundings, visits to concerts and a performance of "Laterna Magica", a banquet and a closing evening picnic in the park of the Château Průhonice, etc.; all these events enjoyed great interest.

The number of participants in the Symposium is 608 (of them 450 persons from abroad) and 132 accompanying visitors (except for about 15 children from 2 to 16 years of age). Quite remarkable is the high number of visitors from other countries than Europe (150, of them 74 from the USA).

F. SORM



## REPORT ON THE ACTIVITIES OF THE ANALYTICAL CHEMISTRY SECTION

The Executive Committee has held in the first year of my term as president two meetings, one at Basle on 19 February, together with the Secretary General, Dr. MORF, and the second at Birmingham on 2 April, during the FEIGL Symposium. At the last occasion there was also an informal meeting of the Section Committee when the following points were discussed:

(1) Election of new members of the Section Committee because in 1963 the terms of office of the following members will terminate: R. BELCHER, G. CHARLOT, P. WEST and I. ALIMARIN;

(2) to request all Commissions to handle the elections in order, that after 1963 all members of the Analytical Section may be chosen always in a odd year;

(3) the Executive Committee considers that after the Analytical Congresses in Oxford 1952 and Lisbon 1956 it would be desirable to organize an International Analytical IUPAC Congress in 1964 or 1965. This point was also discussed during the meeting of the Section President at London on 11 April;

(4) Status of proposed publications:

(a) the English Translation of Prof. W. FEITKNECHT's report on "Löslichkeitskonstanten von Metall-Oxyden, -Hydroxyden und -Hydroxydsalzen in wässrigen Lösungen" has been completed and sent to the author for approval;

(b) the Section Committee has approved the draft publication "Recommended test substances for the micro-determination of halogens and sulfur in organic compounds", which has been compiled by the Commission on Microchemical Techniques. Dr. DEGENS will see it through its final stages and pass the suggestions made by Prof. PŘIBIL and Prof. GÉLMAN on to the Commission concerned;

(c) the publication concerning recommendations on complexing agents in analytical chemistry is in the press;

(d) a simplified list of terms to be used by the Analytical Chemist is ready for printing. This list is in English, French, German and Spanish;

(e) in order to give a wider publicity to the work of the Analytical Chemistry Section, Prof. BELCHER will prepare a survey of this work before 1 January 1963, which will be submitted for publication in journals to be selected later.

### (5) *Proposal about $1 \text{ Emich} = 10^{-15}$*

This proposal from the Commission on Microchemical Techniques was discussed at some length. The meeting decided to ask the Commission on Nomenclature whether they will study this point after concluding their current inquiries in 1963. Prof. MALISSA and Prof. BELCHER will collect all pertinent literature to which they have access and hand it to Dr. DEGENS.

### (6) *Teaching of Analytical Chemistry*

This point was raised on Friday 13 April, 1962, by delegates of the FEIGL Symposium after the conclusion of the proceedings. A resolution will be drawn up in co-operation with Prof. MALISSA and Prof. GORDON, among others.

This point will be mooted again during the Symposium to be held in London in 1963. In the light of the data accumulated at both meetings, the Analytical Section Committee of the IUPAC will consider what further steps could be taken.

## V. 1 Commission on Reagents and Reactions

As decided in Montreal, the scheme suggested by Prof. FEIGL has been put into operation. The collection of references to analytical data for the period 1930–1960 has been allocated to a number of colleagues, who have readily promised to co-operate, as follows:

- 1930–35 Dr. EUGENE SAWICKI, Cincinnati, Ohio
- 1936–41 Prof. NICHOLAS CHERONIS, New York
- 1942–47 Dr. MAURICE PESEZ, Paris
- 1948–53 Dr. AAGE JART, Copenhagen
- 1954–60 Dr. W. J. STEPHEN, Birmingham

In addition, Dr. V. ANGER (Vienna), Dr. D. GOLDSTEIN and Dr. J. R. AMARAL (Rio de Janeiro) will collect references concerning spot test for the whole period.

The collected material should be submitted to the Chairman or the Secretary of the Commission before the 1 January, 1963, so that the information may be coordinated and an outline for the further work of the Commission prepared before its next meeting. It was hoped that the next meeting would take place during the IUPAC Conference in London in 1963, but since this does not now appear possible it may prove necessary to discuss further procedure by letter in order not to delay the work too much.

## V. 2 Commission on Microchemical Techniques

The work on the compilation of lists of the recommended test substances for the various determinations is still in progress. To date the Commission has accomplished the following:

- (1) "Recommended Test Substances for the Microdetermination of Carbon and Hydrogen" has been published in "Pure and Applied Chemistry", 1960, vol. 1, pp. 143–145.
- (2) "Recommended Test Substances for the Microdetermination of Nitrogen in Organic Compounds" has been published in "Pure and Applied Chemistry", 1961, vol. 3, pp. 513–515.
- (3) "Recommended Test Substances for the Microdetermination of Halogens and Sulfur in Organic Compounds" has been submitted to the Section for approval and subsequent publication in "Pure and Applied Chemistry".
- (4) Additional lists will be prepared for other elements and groups.
- (5) Consideration is being given to a project which would require the collecting and publishing of data on the sources of error in the microdeterminations of both elements and functional groups.
- (6) Within the Commission a study group on inorganic microchemical problems has been set up to make recommendations along these lines.
- (7) A study group headed by one of the members of the Commission will conduct a collaborative study to investigate the accuracy and precision of the microdetermination of carbon-hydrogen.

Several other projects are in the preliminary stages, but they have not progressed to the point where mention of them should be made.

## V. 3 Commission on Nomenclature of Analytical Chemistry

Two projects are in hand:

- (1) The revision of the Preliminary Recommendations on Nomenclature and the Presentation of Data on Gas Chromatography which were published

in "Pure and Applied Chemistry" in 1960. Some suggested amendments to these have been published in the scientific press with an invitation to those interested to comment, there should be no difficulty in getting the amendments ready for 1963.

(2) Preparation of recommendations on Nomenclature of Solvent Extraction. A first draft of this was produced by Prof. ALIMARIN for consideration by the Commission in Montreal, and after discussion Prof. ALIMARIN undertook to revise it in consultation with other experts in the field with a view to obtaining agreement on the subject for 1963.

(3) The Executive Committee is considering again the draft of the simplified list of terms to be used in Analytical Chemistry and it is being on the best way to be published.

#### **V. 4 Commission on Spectroanalysis and other Optical Procedures for Analysis**

(1) The Committee held a meeting in Montreal on 5 and 6 August, 1961.

(2) Reference is made to Minute No. 4 relating to this meeting, with the report of Prof. V. A. FASSEL, Chairman, on the same meeting of the Committee as Appendix I.

(3) The Committee has decided to sponsor the 10th International Colloquium on Spectroscopy (University of Maryland), 18-22 June, 1962, of which Dr. B. F. SCRIBNER will be General Chairman.

We are giving a brief survey of the subjects which the Committee intends to deal with, and of their progress.

*Subject I:* Recommendations on units and symbols. No official document has been sent to the secretariat. Yet several of us are engaged on this work.

*Subject II:* Recommendations to bring the descriptions of the analytical procedures employing emission spectroscopy in an international form. Prof. V. A. FASSEL has submitted a text which has been studied and several times amended.

*Subject III:* Following from Subject II. Collect the procedures of emission spectroscopy described in the above-mentioned international form. Up to now no official document has been produced. Yet several members of the Committee have this work in hand.

*Subject IV:* Critical publication of the analytical spectral rays used in qualitative and quantitative analysis. The National Bureau of Standards of the U.S. Dept. of Commerce has published under the supervision of Messrs. WILLIAM F. MEGGERS, CHARLES H. CORLISS and BOURDON F. SCRIBNER.

Tables of Spectral-line intensities: arranged according to elements part I; arranged according to wavelength part II. From 2039.85: Se I to 9004.73: Hf I.

*Subject V:* For the principal analytical rays; deduce from these tables and, if necessary, calculate the degree of probability of transition. No work done on this subject.

*Subject VI (a):* Critical study of calibration methods independent of analysis by purely chemical means.

Prof. H. KAISER has submitted a report on this subject.

*Subject VI (b):* Collect and give all information on the availability of commercial standard samples. Dr. E. LÆVILLE is preparing this document, but he is still waiting for a few answers required to finish this work.

*Subject VII:* Calibration methods for spectral analysis not combined with any other analytical procedure. Correlation of calibration values in spectral analysis. Two reports of these two subjects have been submitted by Prof. H. KAISER.



*Additional Subject:* With a view to a new edition of HARRISON's tables by MIT, the Secretary has been given the task of collecting the observations and suggestions arising from the use of these tables in actual practice. Numerous letters have reached the Secretariat and a note will appear in due course.

## V.5 Commission on Electrochemical Data

*Compilation of Dissociation Constants of Weak Acids and Bases* by D. D. PERRIN, The John Curtin School of Medical Research, Australian National University, Canberra, ACT.—Dr. PERRIN sends the following report:

"My card index literature references cover about 3500 bases and inorganic acids in water. This represents more or less the end of my literature searching, and I am about to begin tabulation, literature checking and assessment of likely reliability. Because of the number of substances involved, I propose (unless a better alternative is suggested) to classify them into the following main groups:

- (a) substituted paraffins, increasing from methane,
- (b) carbocyclic, by increasing ring size,
- (c) aromatic,
- (d) heterocyclics, alphabetical, subdivided into sections by numbers of rings and numbers of heteroatoms (one ring, one heteroatom before one ring, two heteroatoms, etc.).

Within each group, classification would be alphabetical by substituent, in accordance with IUPAC rules, e.g. "*Pteridine*, 2-amino-3,4-dihydro-4-hydroxy". The index would be mainly for cross-reference of the type, "Ethylenediamine, see *Ethane*, 1, 2-diamino". Many of the recorded pK values are little better than approximate, but in the absence of anything better, it seems to me desirable to list them.

I hope that I shall have completed this work by the end of 1962."

*Molten Salts:* The Sub-commission is composed of Prof. G. CHARLOT, Dr. S. N. FLENGAS, Dr. G. J. HILLS, Prof. H. A. LAITINEN and Dr. W. J. HAMER, chairman. The Sub-commission is setting up an electromotive series of the elements in molten salts with emphasis on a reference electrode which will receive international approval and acceptance. This is a difficult problem as it will involve establishment of a convention that will be used universally for all time. It is expected that a detailed report will be available by the London meeting in June 1963.

*Non-Aqueous Media:* This Sub-commission is composed of Dr. R. A. ROBINSON, chairman, Dr. BATES and Proff. CHARLOT and KORTUM. It was appointed to examine critically methods for the determination of electrochemical data in non-aqueous solvents. It is expected that the work of this Commission will be carried out during the period September 1962 to June 1963.

The Executive Committee will reconsider the compilation-work done by TANAKA and TAMAMUSHI on "Kinetic Parameters of Electrode Reactions" on the next occasion and take further steps.

## V.6 Commission on Equilibrium Data

The activities of the Commission through 3 August, 1961, were summarized in detail by Prof. SCHWARZENBACH in his report on the meeting of the Commission in Montreal. Subsequent to that time the manuscript by Prof. W. FEITKNECHT and Dr. P. SCHINDLER:



“Löslichkeitskonstanten von Metall-Oxiden, -Hydroxiden und -Hydroxidsalzen in wässrigen Lösungen” (“The solubility constants of metal oxides, hydroxides and hydroxide salts in aqueous solutions”) has been submitted to “Pure and Applied Chemistry” and approved. The Editorial Advisory Board, however, has requested that an English translation be made and published by the IUPAC, and this is in preparation. It is hoped that the Executive Committee will be able to reimburse Professor FEITKNECHT for the cost of the translation.

The manuscript of the second edition of *Tables of the Stability Constants of Metal Complexes* is nearing completion and is expected to be ready for the printer, at least in part, by sometime in June. The complete manuscript for both sections (Inorganic and Organic) should be in the hands of the printer by September. Prof. SILLÉN reports that the new reference system has turned out to be a great improvement and should enormously reduce the labour of future revisions. The problem of devising a satisfactory system combining an automatic typewriter with a computer for preparation of the manuscript from punched cards, has not been satisfactorily solved. The decision was, therefore, made to abandon immediate plans for an offset reproduction and go ahead and have the second edition typeset and printed in the conventional manner. The semi-automatic system should be feasible for the projected third edition several years hence. Prof. SILLÉN is in charge of the preparation of the Inorganic and Prof. A.E. MARTELL of the Organic portion of the tables. A check is being carried out against the original literature in order to eliminate errors which may have crept into the manuscript.

H. MALISSA (President)

Vienna, August 1962

# EXCERPT FROM THE MINUTES OF THE MEETING OF THE COMMISSION ON THE NOMENCLATURE OF ORGANIC CHEMISTRY

*Marienlyst (Denmark), 2-6 July, 1962*

## Terms of Reference of the Commission

90. *Specialized Fields.* The President invited the Commission to consider and discuss the general terms of reference of the Commission, particularly as to whether the rather specialized fields, such as those of carbohydrates, steroids and inositols are inside or outside those terms of reference.

91. *Collaboration.* A lengthy discussion ensued from which it gradually emerged that the Commission would welcome the opportunity of collaborating with the devisers of specialized nomenclature at a somewhat earlier point than heretofore. It was felt that after a group had produced a report, often with the simultaneous use of its rules in publications, it was very difficult to correct inconsistencies with the general rules of organic nomenclature.

92. *Ideal Procedure.* It was concluded that the ideal procedure was that as soon as a specialized report had arrived at an early draft stage, and before it had been at all widely circulated, it should be made the subject of study by a study group composed of members delegated for this purpose by the Commissions of IUPAC and members of the group originating the report. After their deliberations a tentative report could be circulated through the Secretary General's office to the organizations adherent to the Union. Then, after these organizations had replied and the report had been amended where necessary, the Union could put forward a Definitive Report which would give satisfaction to all concerned. It was realized that this procedure could not always be realized in practice, but it was agreed that it should be our aim, and that steps should be taken to publicize this view, so that all those starting specialized nomenclature studies can be made aware of our desire to collaborate, and the mechanism by which such collaboration can be effected.

93. *Current Projects.* Insofar as the specialized topics now under discussion are concerned, it was agreed that the following action should be taken:

(a) *Le-Van-Thoi Report:* One copy of this report, with a letter from the President of this Commission is to be sent through the Secretary General's office to each of the organizations adherent to the Union. The President will send a letter to Prof. LE-VAN-THOI telling him that this action has been taken (see Minute 77).

(b) *Carbohydrate (Saccharide) Report:* A similar distribution of this report will be made, and both the report and comments upon it will be considered by a study group of this Commission, consisting of VERKADE, LOZAC'H, CAPELL and CAHN representing this Commission, with two representatives nominated by the Biological Commission from its members, and four saccharide specialists, only two of whom shall be from the group responsible for the report (see Minutes 79-89). Members of the Organic Commission are to suggest suitable names for the four specialists to VERKADE by 1 September and he is to make the choice and issue invitations. VERKADE is to request IUPAC to pay fares and subsistence for members of the study group. Before the study group is set up, VERKADE is to write a letter to National Bodies represented on the Union and to request the Secretary General to send it, together with copies of the US-British Carbohydrate Nomenclature Report. The letter is to state that the Commission intends to study saccharide nomenclature and invites comments on the report. VERKADE is to prepare copies of the report from a one-sided copy which CAHN will provide.

(c) *Steroid Report*: As similar procedure is contemplated as for the carbohydrate report, but no immediate action is desired (see Minute 76).

94. *Future Problems*. When future problems arise in specialized organic chemical nomenclature, a similar procedure will be used, a study group being appointed by this Commission and other Commissions of the Union directly affected, with invited experts in the field concerned.

95. *Systematic Nomenclature*. It was decided not to set up now a separate Commission to begin study of a completely new system of systematic nomenclature. It was generally felt that such work would be needed in the not too distant future, but that the time was not yet quite ripe and future developments in cyphering should first be awaited.

96. *WHO*. VERKADE reported that as a result of discussions between MORF, himself, and the World Health Organization, it would be necessary at some near future date for the Commission to collaborate with WHO by providing IUPAC systematic names for drugs appearing on WHO lists.

### Section C—Replacement Nomenclature

*Document: Galley Proof of Rules C-61 to C-66*

97. *Procedure*. The Commission discussed the rules for "a" nomenclature of chains which are in the press because time did not permit an adequate discussion of these rules in Columbus in 1961. It was agreed to change, before they are printed, such of these rules as now appear incorrect but to leave additions and minor improvements to the later stage of revision of the definitive rules.

98. *Priority* (Rule C-64). Rule C-64 was to be altered at once so as to provide priority for lowest numbers, successively—so far as necessary, to (i) the point of attachment of a radical, (ii) heteroatoms, in accordance with the provisions of Section B, (iii) suffix [i.e. acid or salt group], (iv) unsaturation, and (v) other substituents as in Section A [or the earlier rules of Section C].

99. *Choice of Chain* (Rule C-61). It was noted, for change later, that the choice of main chain is not defined in the present rules. This should be done on revision by adding to Rule C-61 statements that choice of main chain depends, successively—so far as is necessary, on (i) the nature of the heteroatoms in accordance with paragraphs e, f, and g of Rule B-3.1, (ii) locants for the heteroatoms. [After the meeting CAHN suggested that this should be (a) lowest numbers for all the "a" terms considered together as a single series and then (b) lowest locant for the "a" term occurring first in Table 1 of Section B.]

100. *Delete Carba* (Rule C-66). Rule C-66 of the present tentative rules, concerning the use of carba, is to be deleted from the tentative rules.

*Closing*. After thanks had been rendered to VEIBEL, JENSEN, Mrs. VEIBEL, Mrs. JENSEN, and the President, the meeting terminated.

## IUPAC PUBLICATIONS

### *Editorial Advisory Board*

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Scientific Editor: B. C. L. WEEDON, Queen Mary College, London E.1. (GB)  
Publishers: Butterworths, 4-5 Bell Yard, London, W.C.2

### **Official Journal of IUPAC: "Pure and Applied Chemistry"**

*Two Volumes a year, each volume 600 pages (approx.), Subscription £6 (\$18.00) per volume*

The International Union of Pure and Applied Chemistry decided to publish the new journal "*Pure and Applied Chemistry*" in conjunction with Butterworths so that chemists everywhere could benefit from the large amount of very important material handled each year by the Union. It was felt that matters of international importance had often not received a sufficiently wide circulation to make them easily available throughout the world.

The journal has two objects: firstly to publish the main invited lectures of symposia sponsored by IUPAC and secondly to publish the recommendations of the Union's commissions on nomenclature, symbols, and such matters as standard analytical procedure.

To date in Volumes I-V the following have been published:

- Volume I/1 (1960): Proceedings of Radioactivation Analysis Symposium, Vienna (Austria), June, 1959
- Volume I/2-3 (1961): Dissociation Constants of Organic Acids in Aqueous Solution
- Volume I/4 (1961): Tables of Wavenumbers for the Calibration of Infra-red Spectrometers
- Volume II/1-2 (1961): Proceedings of the Symposium on Thermodynamics, Fritzens-Wattens (Austria), August, 1959
- Volume II/3-4 (1961): Special Lectures presented at the International Symposium on The Chemistry of Natural Products, Melbourne, Canberra and Sydney (Australia), 1960
- Volume III/1-2 (1961): Proceedings of the International Symposium on Maximum Allowable Concentrations of Toxic Substances in Industry, Prague (Czechoslovakia), April, 1959
- Volume III/3-4 (1961): Proceedings of the Second International Symposium on Enzymes in Clinical Chemistry, Ghent (Belgium), April, 1961
- Volume IV/1 (1962): General and Introductory Lectures presented at the Fifth European Congress on Molecular Spectroscopy, Amsterdam (Netherlands), 1961
- Volume IV/2-4 (1962): Special Lectures presented at the International Symposium on Macromolecular Chemistry, Montreal (Canada) 1961
- Volume V/1-2 (1962): Proceedings of the Wood Chemistry Symposium, Montreal (Canada), 1961



## Symposia

- \*Radioactivation Analysis (Vienna, 1959) Price 30s.
  - Theoretical Organic Chemistry Price 50s.
  - (Kekulé Symposium, London, 1958)
  - XVI IUPAC Congress, Paris, 1957: Inorganic Chemistry Price 97s. 6d.
  - XVII IUPAC Congress, Munich, 1959:
    - Vol. I Inorganic Chemistry Price 63s.
    - Vol. II Biochemistry and Applied Chemistry Price 75s.
  - \*Thermodynamics (Fritzens-Wattens, 1959) Price 50s.
  - \*Chemistry of Natural Products (Australia, 1960) Price 70s.
  - \*Maximum Allowable Concentrations of Toxic Substances in Industry (Prague, 1960) Price 70s.
  - \*Enzymes in Clinical Chemistry (Ghent, 1961) Price 60s.
  - \*Molecular Spectroscopy (Amsterdam, 1961) Price 40s.
  - \*Macromolecular Chemistry (Montreal, 1961) Price 63s.
- Those who attended the Symposium on Macromolecular Chemistry in Montreal, are entitled to purchase the volume at a discount of 20%. Should you wish to avail yourself of this concession please send remittance for 50/6d. plus 2/-d. postage to the Medical and Scientific Division, Butterworths (Publishers) Ltd., London.
- \*Wood Chemistry Symposium (Montreal, 1961) Price 60s.
  - \*Reprinted from "Pure and Applied Chemistry".

## Reports and Official Publications

- \*Tables of Wavenumbers for the Calibration of Infra-red Spectrometers Price 40s.
- \*Dissociation Constants of Organic Acids in Aqueous Solution Price 50s.
- Nomenclature of Organic Chemistry (IUPAC 1957 Rules) Price 15s.
- Nomenclature of Inorganic Chemistry (IUPAC 1957 Rules) Price 15s.
- Methods for the Determination of Toxic Substances in Air Price 30s.
- Vitamin A Potency of Beta-Carotene Price 6s.
- Assay of Vitamin A Oils Price 3s.
- Classification of High Polymers Price 10s. 6d.
- Determination of the Copper Content of Foodstuffs Price 3s.
- Education and Training in the Paint Industry Price 6s.
- Manual of Physico-Chemical Symbols and Terminology Price 7s. 6d.
- Comptes Rendus Price 42s.
- Information Bulletins, Nos. 1-16 Price 5s. each

\*Reprinted from "Pure and Applied Chemistry" available from Butterworths, 4-5 Bell Yard, London, W.C.2

## FORTHCOMING EVENTS

### TREIZIÈME RÉUNION ANNUELLE DE LA SOCIÉTÉ DE CHIMIE PHYSIQUE

La Société de Chimie physique consacrera sa 13<sup>e</sup> Réunion annuelle à une discussion sur le sujet suivant: *Interactions moléculaires en phase liquide*

La réunion aura lieu à Paris du 4 au 8 juin 1963.

Pour tous renseignements s'adresser au Secrétaire général, Prof. G. EMSCHWILLER, Société de Chimie physique, 10, rue Vauquelin, Paris-V<sup>e</sup>.

#### *Interactions moléculaires en phase liquide*

Les interactions moléculaires conditionnent pratiquement les états physiques de la matière et leur intervention dans un grand nombre de processus chimiques et biologiques apparaît de plus en plus importante. C'est pourquoi une mise au point a paru utile; mais une délimitation est nécessaire, compte tenu de l'ampleur du sujet. La Société de Chimie physique a donc décidé de mettre à l'ordre du jour de sa 13<sup>e</sup> Réunion annuelle les «Interactions moléculaires en phase liquide».

Les premières séances seront consacrées à l'inventaire des forces intermoléculaires dont la diversité paraît s'accroître. C'est ainsi, par exemple, que les complexes avec transfert de charge semblent gouverner des interactions en phase liquide que l'on pensait autrefois du ressort exclusif des forces de dispersion.

Notre programme prévoit aussi l'étude des manifestations thermodynamiques des forces intermoléculaires.

Différents effets physiques provoqués par les interactions moléculaires seront ensuite abordés, mais il importe de préciser que les résultats expérimentaux seront considérés dans la mesure où ils permettent d'acquérir des informations concernant la nature des forces intermoléculaires et leur influence sur les phénomènes dynamiques conditionnés par le temps de relaxation.

On peut espérer que la rencontre de chercheurs, d'horizons très divers, réunis par un intérêt commun pour les interactions moléculaires sera fructueuse et apportera à chacun une meilleure compréhension d'un problème dont l'importance et la difficulté sont certaines.

### **Irish National Committee for Chemistry Symposium on Chemistry and Biochemistry of Fungi and Yeasts**

*Dublin, 18-20 July 1963*

The Symposium will be of the Gordon conference type, that is to say, there will be a number of addresses each lasting about fortyfive minutes, given by invited lecturers. A discussion will follow each address.

The Symposium will be divided into three sections.

Section I relates to Fungal Metabolites. Lecturers: Prof. A. J. BIRCH, F.R.S. (Manchester), A. W. JOHNSON (Nottingham), V. PRELOG, F.R.S. (Zurich), W. B. WHALLEY (London).

Section II relates to the Biochemistry of Fungi. Lecturers: Drs. MOIRA E. K. HENDERSON (Aberdeen), D. B. COWIE (Washington), D. J. D. HOKKENHULL (Ulverston).

Section III relates to the Chemistry and Biochemistry of Yeasts. Lecturers: Prof. S. R. MARDASHEV (Moscow), Drs. H. SUOMALAINEN (Helsinki), MAW (Guinness), D. H. NORTHCOTE (Cambridge), Prof. G. EHRENSVÄRD (Lund), Dr. A. H. COOK, F.R.S. (London).

## **SYMPOSIUM INTERNATIONAL DE CHIMIE MACROMOLÉCULAIRE**

### **International Symposium of Macromolecular Chemistry**

*Paris, 1er au 5 juillet 1963*

Sous les auspices de la Délégation générale à la Recherche scientifique et technique et du Comité national de Chimie et de l'Union internationale de Chimie pure et appliquée

*Présidents:* MM. G. CHAMPETIER, C. SADRON

*Adresse:* Comité d'Organisation, Symposium international de Chimie macromoléculaire, 11, rue Pierre-Curie, Paris-5<sup>e</sup>, France

Under the patronage of the Délégation générale à la Recherche scientifique et technique and the National Committee for Chemistry and the International Union of Pure and Applied Chemistry

*Chairmen:* MM. G. CHAMPETIER, C. SADRON

*Address:* Organizing Committee, International Symposium of Macromolecular Chemistry, 11, rue Pierre-Curie, Paris-5<sup>e</sup>, France

Afin de permettre à chaque congressiste de suivre toutes les séances du Symposium et de ne pas nuire à l'unité de celui-ci, le Comité d'Organisation a décidé d'éviter de tenir plusieurs séances parallèles. En conséquence, le nombre des communications et celui des sujets traités ont été volontairement limités. Les sujets discutés au cours du Symposium seront répartis dans quatre sections principales, subdivisées chacune en deux sous-sections. La session de chaque sous-section se tiendra en une demi-journée. Chaque session comprendra une conférence générale d'une durée de 40 minutes à une heure, qui sera suivie de brèves communications de 10 minutes chacune. Toutes les conférences et communications seront suivies de discussions. En cas de nécessité, des séances de discussions supplémentaires seront organisées sur les sujets qui n'auront pas été épuisés au cours des sessions normales.

#### *Pré-tirages et impression*

Les textes complets des communications seront distribués aux congressistes à leur arrivée à Paris. Les communications ainsi que les discussions seront publiées dans le «Journal of Polymer Science».

#### *Sujets du Symposium*

Les sujets suivants seront traités au cours des réunions du Symposium:

- 1<sup>o</sup> Mécanisme et cinétique des polymérisations stéréospécifiques
  - a) En milieu hétérogène
  - b) En milieu homogène
- 2<sup>o</sup> Polymérisations dans des conditions inhabituelles et utilisation de catalyseurs nouveaux

- a) Polymérisation en phase solide
- b) Polymérisation en phase gel, sous haute-pression, etc.
- 3<sup>o</sup> Propriétés des polymères séquencés et greffés
  - a) En solution
  - b) En masse
- 4<sup>o</sup> Propriétés électroniques des polymères
  - a) Polymères synthétiques
  - b) Polymères naturels

Les conférences générales seront faites sur invitation du Comité d'Organisation. Les personnes désirant présenter une communication sur un sujet entrant dans le cadre de l'une des sections du Symposium sont priées de l'indiquer sur la ligne réservée à cet effet dans le formulaire d'inscription provisoire. Elles devront faire parvenir au Comité d'Organisation un résumé de leur communication d'environ 200 à 300 mots. Les textes complets (prêts à être imprimés) des communications acceptées par le Comité d'Organisation devront lui parvenir avant le 1<sup>er</sup> janvier 1963.

### *Langues du Symposium*

Les langues officielles du Symposium sont le français et l'anglais. Toutes les communications ainsi que les interventions dans les discussions devront être faites dans l'une ou l'autre de ces langues.

Les conférences générales pourront être faites dans la langue choisie par le conférencier; des traductions dans les langues officielles du Symposium seront projetées sur des écrans pendant la conférence.

### *Programme*

Le programme scientifique du Symposium sera communiqué ultérieurement aux personnes qui auront rempli le formulaire d'inscription provisoire.

### *Activités extra-scientifiques*

Un programme spécial sera établi pour les dames pendant le Symposium.

Des réceptions auront lieu pour les congressistes et leurs épouses.

Un banquet clôturera le Symposium. Des excursions autour de Paris et à travers la France seront proposées aux congressistes et à leur famille pour les jours qui suivront le Symposium.

Des détails supplémentaires concernant les modalités d'inscription et les autres problèmes intéressant les congressistes seront donnés dans une circulaire ultérieure.

In order to make it possible for every member to attend all the sessions of the Symposium and to preserve its unity, the Organizing Committee has decided not to hold simultaneous sessions. Accordingly, the number of the papers and that of the topics to be discussed has been deliberately limited. The subjects to be discussed at the Symposium are classified into 4 main sections, each of which contains two sub-sections. One half-day will be devoted to each sub-section and will include a general lecture of about one hour followed by short communications of 10 minutes each. All lectures and short communications will be followed by a discussion. Facilities will be provided for additional discussion outside the normal sessions.

### *Preprints and printing of papers*

Preprints of the original papers will be available to all participants of the Symposium on arrival in Paris. The papers as well as the full discussions will be published in the Journal of Polymer Science.



### *Subjects of the Symposium*

The following subjects have been selected for discussion:

- (1) Mechanisms and kinetics of stereospecific polymerisations
  - (a) In inhomogeneous media
  - (b) In homogeneous media
- (2) Polymerisations under unusual conditions, including the use of new catalysts
  - (a) Polymerisation in the solid state
  - (b) Polymerisation in gels, under high pressure, etc.
- (3) Properties of graft and block copolymers
  - (a) In solution
  - (b) In the solid state
- (4) Electronic properties of polymers
  - (a) Synthetic polymers
  - (b) Natural products

The general lectures will be given by invited speakers. Participants who wish to present short communications on one of the selected subjects are requested to fill in the corresponding line of the provisional registration card. Abstracts of about 200 or 300 words are to be sent to the Organizing Committee. Accepted papers must be received in full (ready for printing) before 1 January, 1963.

### *Official languages*

The official languages of the Symposium are French and English. All papers as well as discussions are to be presented in one of these languages.

The general lectures can be delivered in any language chosen by the lecturer; simultaneous translation in the official languages will be projected on screens during the lecture.

### *Programme*

The scientific programme will be communicated in due course to those who have completed the provisional registration form.

### *Social activities*

A special ladies programme will be organized.

Official receptions will be arranged for participants and their ladies.

A banquet will be held at the end of the Symposium.

Special post-Symposium tours around Paris and elsewhere in France will be organized.

Details concerning the programme and final registration will be given in a further circular.

## **Vth INTERNATIONAL PESTICIDES CONGRESS**

*London, 17-23 July 1963*

Under the auspices of the Pesticides Division of the Applied Chemistry Section of the International Union of Pure and Applied Chemistry, the Vth International Pesticides Congress will be held in London from 17 to 23 July 1963, President Sir ROBERT ROBINSON, O.M., F.R.S., Nobel Laureate. This Congress will be concerned with the fundamental aspects of the subject which will be considered in sessions dealing with:

- (1) Selective toxicity
- (2) Mode of entry and translocation of pesticides in arthropods and plants
- (3) Chemical factors associated with host selection and pathogenicity
- (4) Metabolism of pesticides and microbiological breakdown
- (5) Correlation between biological activity and molecular structure

The Scientific Committee is issuing invitations to contributors, but suitable papers on recent developments in these fields may be offered to the Secretary of the Committee for consideration.

To preserve the essentially scientific nature of the Congress, it may be necessary to limit attendance.

A second circular which will include more details of the programme will be available.

Honorary Secretary, Vth International Pesticides Congress, 14 Belgrave Square, London, S.W.1, England

## SYMPOSIUM ON THERMODYNAMICS AND THERMOCHEMISTRY

*Lund (Sweden), 18-23 July 1963*

A Symposium on Thermodynamics and Thermochemistry will be held in Lund, Sweden, 18-23 July 1963. It is jointly sponsored by the Commission on Thermodynamics and Thermochemistry, IUPAC, and by the Swedish Chemical Association.

The Symposium is planned to include 7 *half-day sessions* on the following topics:

### *Methods:*

- (1) Calorimetry of combustions and related reactions
- (2) Calorimetry of reactions other than combustions
- (3) Calorimetry of non-reacting systems with particular emphasis on solution and mixing processes

### *Specific areas:*

- (4) Coordination enthalpies
- (5) Biochemical calorimetry

### *One-component transitions:*

- (6) Ordering transitions
- (7) Phase transition calorimetry

Each session will have one or two plenary lectures by invited speakers followed by discussion of the theme of the session. A panel made up of the contributors of papers will lead the discussion. Manuscripts will not be presented at length.

Contributed papers will not be published hence reporting of new and interim ideas and observations is encouraged. Abstracts will be mailed in advance to all participants. Panel delegates will receive complete session manuscripts in advance. Manuscripts must therefore be received by 1 May. They will be available at the meeting.

An 8th session will be held with broad survey lectures.

Additional information and registration forms can be obtained from The Symposium on Thermodynamics and Thermochemistry, Lund (Sweden).

## Vth INTERNATIONAL CONGRESS ON CLINICAL CHEMISTRY

*Detroit, 19-23 August 1963*

Honorary President: OLIVER H. GAEBLER, Ph.D., M.D.

Secretary: Dr. DONALD G. REMP, Fifth International Congress on Clinical Chemistry, Henry Ford Hospital, Detroit 2, Michigan, USA

*The American Association of Clinical Chemists and The Canadian Society for Clinical Chemistry* invite you to attend the Fifth International Congress on Clinical Chemistry, to be held in Detroit, under the Honorary Presidency of OLIVER H. GAEBLER, Ph.D., M.D., from 19 to 23 August 1963. The scientific programme will occupy four days and one day will be devoted to informal discussions and recreational activities. Exhibits of scientific equipment will be on display throughout the five-day meeting.

### *Programme*

The four major symposia will be held in the mornings, with invited speakers. The topics proposed are:

- (1) Metabolic Diseases
- (2) Lipid Metabolism
- (3) Enzymes in Clinical Chemistry
- (4) Physical Methods in Clinical Chemistry

The afternoon sessions will be composed of short papers by the members of the Congress. An abstract of not more than 250 words will be required by 1 March 1963. Papers may be presented in English, French or German. However it is suggested that English is likely to be most generally used.

### *Other Meetings*

For those delegates who may be passing through Toronto, Ontario, on their way to Detroit, and would like to see Toronto and vicinity, the Toronto group of clinical chemists are arranging a symposium on Saturday morning, 17 August, to be followed by a lunch and a tour of some hospital laboratories in the afternoon. The subject of the symposium will be "Studies on Protein Metabolism" and will be a presentation of investigations being conducted in Toronto. A visit to Niagara Falls can be arranged on Sunday, 18 August.

Following the Congress the 145th National Meeting of the American Chemical Society will occur in New York City on 8-13 September.

### *Special Events*

A special excursion to Stratford, Ontario, will be organized to attend a matinee performance at the Shakespeare Festival Theatre on Wednesday, 21 August.

A special programme will be provided for the Associate Members not attending the scientific sessions of the Congress.

## INTERNATIONAL SYMPOSIUM OF NITROCOMPOUNDS

*Warsaw (Poland), September / October 1963*

The Polish Academy of Sciences, Warsaw, intends to organize an International Symposium of Nitrocompounds to be held in Warsaw September-October 1963. The symposium will be sponsored by IUPAC.

The Symposium will deal with the chemistry of nitrocompounds:

- (a) Problems of nitration
- (b) Chemistry of nitroaliphatic compounds
- (c) Chemistry of nitroaromatic compounds
- (d) Biologically active nitrocompounds.

We would appreciate your filling a form and sending it to the organizing Committee.

More details will be given in the second circular which will appear within a few months time.



## CALENDAR

**1963**

### *March*

- 14-15 British Nuclear Energy Conference – Symposium on the Advanced Gas-Cooled Reactor (The Secretary, British Nuclear Energy Society, 1-7 Great George Street, London, S.W.1/GB) London

### *May*

- 1-2 Conference on Advances in Polymers Science and Technology. (Sec. J. N. RATCLIFFE, The Plastic Institute, 6 Mandeville Place, London, W.1.) London

### *June*

- 4-8 Treizième réunion annuelle de la Société de Chimie physique – Sujet: Interactions moléculaires en phase liquide. (Prof. G. EMSCHWILLER, Société de Chimie physique, 10, rue Vauquelin, Paris-5<sup>e</sup>) Paris

### *July*

- 1-5 Symposium international de Chimie macromoléculaire (Prof. MICHEL MAGAT, Faculté des Sciences de Paris, 11, rue Pierre-Curie, Paris-5<sup>e</sup>/France) Paris
- 5-9 XXIIInd Conference of IUPAC (Dr. R. MORF, c/o F. Hoffmann-La Roche & Co. Ltd., Basle 2/Switzerland) London
- 10-17 XIXth International Congress of Pure and Applied Chemistry (Organizing Committee, XIXth International Congress of Pure and Applied Chemistry, 14 Belgrave Square, London, S.W.1/GB) London
- 17-23 Vth International Pesticides Congress (Hon. Sec. 14 Belgrave Square, London, S.W.1) London
- 18-23 Symposium on Thermodynamics and Thermochemistry (Dr. STIG SUNNER, Thermochemistry Laboratory, Lund University, Lund/Sweden) Lund
- 18-20 Symposium on the Chemistry and Biochemistry of Fungi and Yeasts (Prof. T. S. WHEELER, Department of Chemistry, University College, Science Buildings, Upper Merrion Street, Dublin/EIR) Dublin
- 22-27 European Molecular Spectroscopy Meeting (The Hungarian Academy of Sciences, Budapest/Hungary) Budapest
- August*
- 19-23 Fifth International Congress on Clinical Chemistry. (Sec. Dr. DONALD G. REMP, Henry Ford Hospital, Detroit 2, Michigan) Detroit

*September / October*

International Symposium on Nitro-compounds      Warsaw  
(Prof. T. URBANSKI, Institute of Technology-  
Politechnika, Koszykowa 75, Warszawa 10, Po-  
land)

**1964**

*April*

12-18      Symposium on Natural Products (Prof. MUNIO      Kyoto  
KOTAKE, Suita Kenkyujo, 646, Katayaka Suita,  
Osaka / Japan)

*July*

20-24      International Symposium on Organic Reaction      Cork/Ireland  
Mechanisms (The General Secretary, The Chem-  
ical Society, Burlington House, London W.1 /  
GB)

20-25      3rd International Congress on Catalysis (Dr.      Amsterdam  
D. M. BROUWER, P.O. Box 3003, Amsterdam,  
Netherlands)

*August*

4-10      5th International Symposium on the Reactivity      Munich  
of Solids (Prof. G.-M. SCHWAB, Sophienstrasse  
11, Munich / Germany)

*September*

7-11      International Symposium on Coordination Chem-      Vienna  
istry (Prof. GUTMANN, Institut für Anorganische  
und Allgemeine Chemie, Technische Hochschule,  
Vienna)

## PUBLICATION OF SYMPOSIA

The Editorial Advisory Board has made arrangements to publish in "Pure and Applied Chemistry" the main lectures and invited papers delivered at the following symposia held this year:

*International Conference on Coordination Chemistry,*  
Stockholm, June 1962

*2nd International Symposium on the Chemistry of Natural Products*  
Prague, August 1962

*International Symposium on Molecular Structure and Spectroscopy*  
Tokyo, September 1962

*International Symposium on Pharmaceutical Chemistry*  
Florence, September 1962

## BUDGET 1963

### I. INCOME *(based on figures for 1961)*

The regular income is given on the assumption that the Adhering Organizations will contribute the same annual dues in 1963 as they did in 1961 (final figures are not yet available for 1962). Note has been taken of the increased annual dues emanating from change of category—Belgium to Category A1, Australia to Category A1, India to Category B2 and additional members Korea and Viet-Nam to Category C.

Dividends and interest are estimated as \$6,000 and the annual subvention from ICSU is already known.

Voluntary contributions have not been taken into account.

	\$		\$
Argentina . . . . .	450	Italy . . . . .	2600
Australia . . . . .	2600	Japan . . . . .	2600
Austria . . . . .	450	Korea (South) . . . . .	450
Belgium . . . . .	2600	Luxembourg . . . . .	100
Brazil . . . . .	800	Holland . . . . .	2600
Bulgaria . . . . .	450	Norway . . . . .	800
Canada . . . . .	2600	Poland . . . . .	800
China (Taiwan) . . . . .	800	Portugal . . . . .	450
Colombia . . . . .	450	Rumania . . . . .	450
Czechoslovakia . . . . .	800	Spain . . . . .	800
Denmark . . . . .	1600	Sweden . . . . .	2600
Finland . . . . .	450	Switzerland . . . . .	2600
France . . . . .	2600	South Africa . . . . .	800
Germany . . . . .	5000	Turkey . . . . .	450
Great Britain . . . . .	10000	United Arab Republic . . . . .	450
Hungary . . . . .	450	USA . . . . .	10000
India . . . . .	1600	USSR . . . . .	2600
Ireland . . . . .	100	Viet-Nam . . . . .	450
Israel . . . . .	800	Yugoslavia . . . . .	450
			66650
Interest and Dividends . . . . .			6000
ICSU . . . . .			14500
			<u>87150</u>

### II. EXPENDITURE calculated to the nearest dollar

The composition of the Bureau, Divisions\*, Commissions, etc., given in the Comptes Rendus XXI, serves as a basis for the calculation of the expenses to be reimbursed to the Titular Members.

(a) Rail, sea and air fares have been assessed according to the tariff for 1961, based on information from Thomas Cook & Sons. The amounts for 1st class return rail and sea, economy class return by air (with jet service) are given. Fares of less than \$20 have not been included.

(b) With regard to subsistence allowances, a fair estimate has been made.

(c) When looking at the figures allocated for the various Divisions\* and Commissions, it must be borne in mind that those members who have more than one function e.g. as members of the Bureau, are listed for travel



and subsistence allowances under the heading of Bureau Member and the total figure assessed for the Division or Commission is decreased automatically.

(d) In principle, no subvention shall be given to meet costs of meetings which will be held in places other than London, where the next Conference will be held. However, for the Nomenclature Commissions who need much more time for elaboration of their rules, special arrangements are provided.

### *Claim Form procedure*

The administrators are desirous that reimbursement for travel and subsistence is made without delay at the end of the meeting which is the simplest and less expensive procedure. It is, therefore, necessary that the Secretaries of Divisions\*, Commissions, etc., a few weeks before the meeting, ask for the necessary claim forms from either the Treasurer or the Secretary General and distribute them to the members entitled to reimbursement. The completed claim forms signed by the claimant, countersigned by the President of the Commission and the President of the Division, must then be in the hands of the Treasurer at least 10 days before the meeting. The Treasurer will subsequently make the necessary arrangements with the Union Bank of Switzerland for reimbursement to be made at the time and place of the meeting.

XXIInd Conference Administrative Expenses London 1963			
	Travel to London	Subsis- tence	1963
<b>I. Physical Chemistry Section</b>	\$	\$	\$
<i>Section Committee</i> . . . . .	2 055	756	—
I.1 Commission on Physico-Chemical Symbols and Terminology . . . . .	1 434	540	—
I.2 Commission on Thermodynamics and Thermochemistry . . . . .	1 532	540	—
I.3 Commission on Electrochemistry . . . . .	1 654	756	—
I.4 Commission on Macromolecules . . . . .	2 215	540	—
I.5 Commission on Physico-Chemical Data and Standards . . . . .	2 089	540	—
I.6 Commission on Molecular Structure and Spectroscopy . . . . .	2 600	648	—
I.7 Commission on Colloid and Surface Chemistry	2 500	756	—
<i>Symposia</i>			
<i>Administrative Expenses</i> . . . . .	—	—	100
“Bulletin of Thermodynamics and Thermochemistry” . . . . .	—	—	1 000
Total . . . . .	<u>16 079</u>	<u>5 076</u>	<u>1 100</u>
<b>II. Section of Inorganic Chemistry</b>			
<i>Section Committee</i> . . . . .	1 625	756	—
II.1 Commission on Atomic Weights . . . . .	1 097	648	—
II.2 Commission on the Nomenclature of Inorganic Chemistry . . . . .	1 613	540	—
II.3 Commission on High Temperatures and Refractories . . . . .	1 414	1 002	—

II.4	Commission on Geochemistry . . . . .	4 054	756	-
	Proviso for additional meetings . . . . .	1 500	-	-
	<i>Symposia</i>			
	<i>Administrative Expenses</i> . . . . .	-	-	100
	Total . . . . .	<u>11 303</u>	<u>3 702</u>	<u>100</u>

### III. Section of Organic Chemistry

	<i>Section Committee</i> . . . . .	2 090	540	-
III.1	Commission on the Nomenclature of Organic Chemistry . . . . .	839	648*	
III.2	Commission on Codification, Ciphering and Punched Card Techniques . . . . .	-	-	-
	Study Group for Information Retrieval . . . .	3 000	-	-
	<i>Symposia</i>			
	<i>Administrative Expenses</i> . . . . .	-	-	100
	Total . . . . .	<u>5 929</u>	<u>1 188</u>	<u>100</u>

### IV. Section of Biological Chemistry

	<i>Section Committee</i> . . . . .	1 188	540	-
IV.1	Commission on the Nomenclature of Biological Chemistry . . . . .	1 260	1 440*	-
IV.2	Commission on Proteins . . . . .	1 795	756	-
IV.3	Commission on Clinical Chemistry . . . . .	2 209	1 002	-
	Meetings in Basel . . . . .	3 300	-	-
	<i>Symposia</i>			
	<i>Administrative Expenses</i> . . . . .	-	-	360
	Total . . . . .	<u>9 752</u>	<u>3 738</u>	<u>360</u>

### V. Section of Analytical Chemistry

	<i>Section Committee</i> . . . . .	3 036	756	-
V.1	Commission on Analytical Reactions . . . . .	2 610	648	-
V.2	Commission on Microchemical Techniques . .	1 697	864	-
V.3	Commission on the Nomenclature of Analytical Chemistry . . . . .	1 234	432	-
V.4	Commission on Spectrochemical and other Optical Procedures . . . . .	1 809	756	-
V.5	Commission on Electrochemical Data . . . .	1 051	648	-
V.6	Commission on Equilibrium Data . . . . .	3 114	864	-
	<i>Symposia</i>			
	<i>Administrative Expenses</i> . . . . .	-	-	1 200
	Total . . . . .	<u>14 551</u>	<u>4 968</u>	<u>1 200</u>

### VI. Applied Chemistry Section

	<i>Section Committee</i> . . . . .	1 589	540	-
VI.1	Food Division . . . . .	901	756	-
VI.2	Water, Sewage and Industrial Wastes Division	871	648	-
VI.3	Pulp, Paper and Board Division . . . . .	1 241	756	-

VI.4	Plastics and High Polymers Division . . . . .	1 619	756	—
VI.5	Pesticides Division . . . . .	2 181	648	—
VI.6	Organic Coatings Division . . . . .	1 283	864	—
VI.7	Toxicology and Industrial Hygiene Division . . . . .	3 337	648	—
VI.8	Fermentation Division . . . . .	1 837	864	—
VI.9	Oils and Fats Division . . . . .	571	648	—

#### *Symposia??*

#### *Administrative Expenses*

Section . . . . .	—	—	600
Oils and Fats Division . . . . .	—	—	600
Survey . . . . .	—	—	2 100
Compilation of reports . . . . .	—	—	300
Total . . . . .	<u>15 430</u>	<u>7 128</u>	<u>3 600</u>

#### **Diverse**

Ad Hoc Committee on Chemical Technology . . . . .	3 000	—	—
Travel and administrative expenses — President . . . . .	2 000	—	—
Travel and administrative expenses — Treasurer . . . . .	300	—	—
Travel and administrative expenses — General Secretariat . . . . .	1 900	—	16 500
Bureau meeting . . . . .	6 800	—	—
Executive Committee meetings . . . . .	7 000	—	—
Editorial Board . . . . .	2 500	—	—
Scientific Editor . . . . .	2 500	—	—
Butterworths . . . . .	—	—	—
“Comptes Rendus” . . . . .	nil	—	—
Information Bulletin . . . . .	4 000	—	—
Taxes GB . . . . .	2 500	—	—
3% ICSU contribution . . . . .	2 400	—	—
Full time Administrative Secretary (see Bureau Minutes, Brussels) . . . . .	10 000	—	—
Section Presidents’ meetings . . . . .	600	—	—
Final drafting and printing of Statutes . . . . .	1 500	—	—
Ad Hoc Finance Committee meetings . . . . .	500	—	—
Ad Hoc Committee on Co-ordination on the teaching of chemistry . . . . .	3 000	—	—
“Councillors-at-Large” . . . . .	6 500	—	—
Sponsoring one symposium . . . . .	1 000	—	—
* Subject to change			
Total . . . . .	<u>58 000</u>	<u>—</u>	<u>16 500</u>

#### **Recapitulation**

	<i>Travel to London</i>	<i>Subsis- tence</i>	<i>Adminis- tration</i>	<i>Total \$</i>
I. Physical Chemistry Section . . . . .	16 079	5 076	1 100	22 255
II. Section of Inorganic Chemistry . . . . .	11 303	3 702	100	15 105
III. Section of Organic Chemistry . . . . .	5 929	1 188	100	7 217
IV. Section of Biological Chemistry . . . . .	9 752	3 738	360	13 850
V. Section of Analytical Chemistry . . . . .	14 551	4 968	1 200	20 719
VI. Applied Chemistry Section . . . . .	15 430	7 128	3 600	26 158
Diverse . . . . .	<u>58 000</u>	<u>—</u>	<u>16 500</u>	<u>74 500</u>
Grand Total . . . . .	<u>131 044</u>	<u>25 800</u>	<u>22 960</u>	<u>179 804</u>

Contingency Fund for future activity, e.g.

XXIIInd Conference . . . . .

US \$10 000

### III. Realistic Budget

A "realistic budget" was requested taking into account, and indicating under Income and Expenditure, all voluntary contributions such as those made by the President of IUPAC, by various organizations such as the Royal Society and travel support provided by countries that may do so in their own currencies, the Union Bank of Switzerland, and also the support given by the Swiss chemical companies for the office of the Secretary General. All these contributions and grants should be posted as income to IUPAC with an appropriate offsetting charge in the expense column.

These figures amount to the substantial sum of around \$50000 which should be added to the Budget.

\* For Division please read Section until the London Conference.

Le **BUDGET** pour 1963 est basé sur les données suivantes :

#### I. Revenu

Le revenu régulier est donné ci-après avec la supposition que les Organismes adhérents verseront en 1963 la même cotisation annuelle qu'en 1961 (les chiffres définitifs pour 1962 ne nous sont pas encore connus). On a tenu compte également des cotisations annuelles plus fortes provenant de changements de catégories - l'Australie a passé à la catégorie A1, la Belgique de même, l'Inde à la catégorie B2 et deux nouveaux membres, la Corée du Sud et le Viet-Nam, sont entrés dans la Catégorie C. Les dividendes et les intérêts sont estimés à 6000 dollars et la subvention annuelle de l'ICSU est déjà connue. On n'a pas indiqué les chiffres des contributions volontaires que nous espérons recevoir.

#### II. Dépenses calculées en chiffres ronds

La composition du Bureau, des Divisions\*, Commissions, etc., donnée dans les «Comptes Rendus XXI» a servi de base pour le calcul des frais à rembourser aux Membres titulaires.

a) Les dépenses pour les voyages en train, bateau ou avion sont basées sur les tarifs de 1961 donnés par la Maison Thomas Cook & Sons. Les chiffres indiqués s'entendent pour voyage aller et retour en première classe pour le train et le bateau, en classe économique pour l'avion (avions à réactions y compris). Les taxes de moins de 20 dollars n'ont pas été prises en considération.

b) Les frais de séjour ont été estimés d'une manière raisonnable.

c) En observant les chiffres attribués aux diverses Divisions\*, Commissions, il faut noter que les frais à rembourser aux Membres titulaires qui ont plusieurs fonctions au sein de l'IUPAC, p.ex. à la fois Membre d'une commission et Membre du Bureau, ne figurent qu'une seule fois sous la rubrique «Bureau». Par conséquent, les frais à rembourser à la Commission s'en trouvent diminués d'autant.

d) En principe, il ne sera accordé aucune subvention pour des réunions qui auront lieu dans une autre ville que Londres où se déroulera la prochaine Conférence de l'IUPAC. Toutefois des arrangements spéciaux sont prévus pour les Commissions de Nomenclature qui nécessitent un temps beaucoup plus considérable pour l'élaboration de leurs règles.



### *Procédure pour le remboursement des frais*

Le désir des administrateurs est de rembourser les frais de voyage et de séjour à l'issue des réunions, ce qui est la manière la plus simple et la moins coûteuse de procéder. A ces fins, les Secrétaires des Divisions\* et Commissions sont priés de demander, quelques semaines avant la réunion, les formules nécessaires soit au Trésorier soit au Secrétaire général. Ces formules doivent être ensuite remises aux Membres titulaires pour être dûment remplies. Dix jours avant la réunion, le Trésorier doit être en possession de toutes les formules, munies de la signature du demandeur, du Président de la Commission et du Président de la Division. Le Trésorier fera alors les démarches nécessaires pour que les membres soient remboursés de leurs frais, par les soins de l'union de Banques Suisses, au lieu même de la réunion.

### **III. Dépenses effectives**

On m'a demandé d'établir un décompte des dépenses effectives. Celui-ci devrait indiquer sous les rubriques «Recettes» et «Dépenses» toutes les contributions volontaires telles celles versées par le Président de l'IUPAC et par diverses organisations, p.ex. The Royal Society; la participation aux frais de voyage de divers pays, même si cette participation s'est effectuée en monnaie nationale, l'Union de Banques Suisses; prise en charge des frais du secrétariat général par les sociétés suisses d'industrie chimique. Toutes ces contributions et tous ces dons doivent figurer aux «Recettes» de l'IUPAC et un montant approprié, correspondant aux frais encourus, doit figurer dans la colonne des «Dépenses».

Ces chiffres se montent à env. 50000 dollars et doivent être ajoutés au budget.

\* Veuillez lire «Section» jusqu'à la Conférence de Londres.

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R. J. F.

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